Original Articles.

FORLANINI'S ARTIFICIAL PNEUMOTHORAX. (A STUDY.)

Parts III and IV.

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PART III.

AVOIDABLE ACCIDENTS AND COMPLICATIONS.

In the production of an artificial pneumothorax, the gas used may be sterile air, oxygen, or nitrogen. Nitrogen is usually used because it is the least absorbable of the above-mentioned gases. It is injected into the pleural cavity by means of a special apparatus. There are various apparatuses used, operators having devised them according to their own ideas. Deneke[38] has devised an apparatus with which he first introduces oxygen and follows with nitrogen when he is satisfied from the character of the excursions on the manometer that the gas is flowing into the pleural cavity. In this country Dr. Samuel Robinson, a surgeon of the Massachusetts General Hospital, devised one of the best and simplest. The needle used is one modified by the author and may be had in different sizes, preference being given to the smallest caliber needle, as it makes a very small wound and it is not necessary to cut the skin for its easy introduction. The object of this paper is to set forth the avoidable accidents and the complications that have been encountered.

1. Hemorrhage due to puncture of the lung. In the first attempts to enter the pleural cavity, especially if the pleura is adherent, one is liable to puncture the lung. After a first insufflation of nitrogen into the pleural cavity and a pneumothorax is produced, subsequent injections will be easy and there should be no danger of puncturing the lung. Whenever possible after a first insufflation, an x-ray should be taken, as it will demonstrate what has been accomplished and in what manner the lung is collapsed. In a recent communication, The Development of Modern Artificial Pneumothorax,[39] I have dwelt on the value of the Roentgen fluoroscopic and plate examination.

2. Subcutaneous emphysema: The predominating causes are:—

(*a*) Large wound (large needle).
(*b*) Injection of nitrogen at a high pressure.
(*c*) Lack of tensity of the tissues.
(*d*) Excessive thinness of the subject.
(*e*) Paroxysm of coughing following an injection.

The use of a small calibre pneumothorax needle, avoidance of excessive pressure in the introduction of the nitrogen, and application of pressure over the puncture will usually prevent it. An emphysema necessarily prevents further treatment until it has been absorbed. A subcutaneous emphysema ordinarily does not cause any pain or serious disturbance. A sensation of fullness of the affected part and crepitus on pressure are practically the only symptoms. The emphysema may be localized about the site of puncture, or may become diffuse, involving both the chest and abdomen.

3. Pneumothorax from puncture and rupture of the lung is a serious accident. This, however, is unlikely to happen unless the needle is moved laterally while in the lung tissue. Trevisan[40] reports a case where at a primary puncture, the patient, regardless of the directions given, held herself rigidly on inspiration. While the needle was being inserted, she became agitated and backed onto the needle. The needle was thus suddenly thrust deep into the lung. Air was immediately heard rushing from the lung perforation into the pleural cavity. She complained of sudden severe pain in the shoulder. A spontaneous pneumothorax had formed, as was evident on physical examination. Fortunately there were no sequelae and treatment was later continued by the injections of nitrogen. Such an accident probably would not have happened if the place of puncture had been previously anesthetized. At secondary injections, the breaking of an adhesion on the visceral side with the consequent tearing of lung tissue might, of course, have this result. Hornung.[48]

4. Deep or mediastinal emphysema is produced when the nitrogen is injected in large amounts into the lung. When nitrogen is so injected it moves into the air passages either completely or partially. In the latter case it may reach the root of the lung along the peribronchial and perivascular connective tissue and thus lead to a mediastinal emphysema and the consequent deep pressure symptoms. This pressure sensation, which more frequently follows the injections of large amounts of nitrogen into the lung, develops within a few hours after its introduction. The patient may complain of a bubbling sensation on the injected side; later tightness, stiff and sore neck and shoulder, sore throat and difficult deglutition. In some cases the nitrogen was tasted. These symptoms last from a few hours to a few days. X-rays taken soon after showed no evidence of a pneumothorax, proving absolutely that no nitrogen had entered the pleural cavity. The chest on the injected side will be tympanitic and respiration feeble, but never absent. As the nitrogen is dissipated, tympany disappears and respiration returns to its former volume.

Such introductions are dangerous, for the needle may irritate or injure pulmonary branches of the vagus nerve and give rise to serious disturbances or even death. Nitrogen in-

jected into the lung may cause a rupture of lung substance and blood vessels, and may result in the introduction of nitrogen into the circulation, as in Case 15, causing gas embolism. A thorough knowledge of the technic is essential for properly understanding the workings of the manometer.

5. Pleural reflex. Much has been written by French and Italian writers about pleural reflexes, such as eclamptic attacks, loss of consciousness and sudden death. I doubt very much if these reflexes will occur if a preliminary subcutaneous injection of morphia is given, as advised by Brauer and Saugman, or anesthesia of the part is produced by the injection of a solution of novocain-adrenalin. I favor the stand of Brauer and Quinke that the described cases of pleural shock in artificial pneumothorax are really air embolism or a spreading thrombosis from the pulmonary veins. Recently a case of sudden death at a secondary injection was reported.[41] This writer believes that death was due to pleural shock. This is rather unusual as the pleural reflex or shock has been noted at a primary puncture and not at later ones where a partial pneumothorax presumably existed, and the needle was in the pleural cavity.

Faginoli reports the following case of pleural shock: After the injection of 300 c.c. nitrogen, the patient fell back on the bed, the eye-balls turned to the left, the pupils were dilated and rigid, the lips blue, pulse small, 180, breathing slow and shallow, with fibrillation of the muscles and partial unconsciousness. Under heart stimulants, artificial respiration and massage, the patient recovered. The attack lasted ten minutes.

Jaquerod, in a case where he had introduced the nitrogen at a high pressure, says there was almost total blindness for fifteen minutes. There are reports in the literature of cardiac respiratory failure, convulsions, coma, paralysis and even death following exploratory puncture of the pleura or lung. In these cases there was no preliminary injection of morphia or anesthesia of the part. These accidents attributed to exploratory punctures have been made the subject of extended studies by Roch,[42] Cordier[43] and Sears.[44]

The experiments of Brodie and Russell[45] and of Capps and Lewis [46] seem to throw some light on it. Russell believes these phenomena are due to afferent impulses conveyed to the medulla along the vagus nerve, whose terminal fibres, rendered unduly sensitive by compression or inflammation, are irritated by the needle. Capps[47] considers the fibres of the visceral pleura as well as the pulmonary fibres sources of the impulse. Death may be immediate or may be preceded for several days by unconsciousness and convulsions. These depend upon the cerebral anemia produced by cardiac inhibition and the extreme lowering of the blood pressure.

6. Shock from increased toxemia? Acute dilatation of the heart?

CASE 35 of my series died two days later, following the insufflation of 200 c. c. of nitrogen into the left pleural cavity. This was a far advanced bilateral case with very extensive process throughout the left lung. For months she had been running a temperature of 101 to 102. Respiration 30. She entered the Channing Home where for two weeks she was kept under observation. During this time she ran a temperature 101 to 103. Pulse 120 to 130. Respiration 35 to 40. She had daily chills, night sweats and vomiting; took little nourishment and coughed much, the sputum being mucopurulent and blood-tinged.

The general condition was very poor. A preliminary injection of morphia given with the local anesthetic. The needle was introduced into the sixth interspace midaxillary line on the left. Marked negative oscillations were noted on the manometer. Then 200 c.c. of nitrogen were introduced very slowly. No untoward symptoms at the time except a tired feeling. Four hours later the temperature dropped from 103 to 98 and later became normal. The pulse from that time rose from 130 to 145, became feeble, of poor quality and dropped again to 120. The respirations rose from 40 to 60 and remained high until the end. There were no convulsions or paralysis.

This was a very septic, hopeless case whose end was hastened by the injection. Practically moribund patients should not be attempted for treatment.

7. Gas embolism ought to be absolutely avoided. No gas should ever be introduced unless the characteristic respiratory pleural oscillations are obtained. Only then can the operator feel sure of having entered the pleural cavity. At a secondary injection where a partial pneumothorax exists, the needle penetrating the lung, may injure a pulmonary vein; part of the injected air may reach the latter and lead to air embolism in the larger blood vessels. This may happen very easily in certain parts of the lung where the veins are kept open by the tuberculous infiltration of the tissues and so can exercise the power of suction.

CASE 15. Chronic advanced bilateral tuberculosis, active process in both lungs, more marked on the left. The patient received considerable benefit from the treatment which was commenced in May, 1912. Treatment was then interrupted for two months. When the patient returned for treatment in October, two months later, the lung was found on physical examination to be fully expanded. An x-ray examination showed no evidence of pneumothorax. Injection of nitrogen into the left pleural cavity was then again attempted.

The pneumothorax needle was introduced as usual into the left fifth interspace inside midaxillary line. Even respiratory excursions were obtained on the manometer. Two hundred cubic centimeteres of nitrogen were introduced without any change in the respiratory excursions, which were of an even amplitude of three centimeters. Stopping the introduction of gas, I opened the manometer key, and noting the excursions, I gradually withdrew the

needle. The manometric excursions continued until I had withdrawn ½ cm. of the needle, when they suddenly stopped. I attempted to again obtain respiratory excursions by reinserting the needle, but with negative result. I then withdrew the needle. Immediately the patient complained of feeling queer, of a peculiar sensation in the epigastrium, then faintness. He soon became unconscious and rolled from the table to the floor. Then he had general convulsions, involving all the limbs and facial muscles. The pupils were dilated, breathing was deep and heavy. He was not cyanosed, the pulse was full, slow and regular. The unconsciousness and convulsions continued for three-quarters of an hour, the latter decreasing in intensity and gradually ceasing altogether. I gave 1-30 strychnia subc., massaged the heart and did artificial respiration. Then consciousness returned. He was able to answer questions, but unable to move. The pupils continued dilated; he felt confused, but was able to tell his name, where he was and the number of the street where he lived. When he first came out of the convulsions, I asked him what he had felt and he said: "I felt as if I was going to die." That same night he had a second general convulsion, lasting about half an hour, after which he lapsed into semi-consciousness. The next morning he was unable to see and was somewhat dazed, but could answer questions intelligently. He felt very weak and was unable to use his limbs. He complained of a severe headache. The rectal temperature was 102, pulse 72 and respiration 18. Calomel was given for catharsis; potassium bromide for the restlessness; and an ice cap for the headache. He passed a comfortable night and slept well. The next morning he felt much better, could plainly see, but felt very weak. From that time on he had an uninterrupted convalescence.

I think that this was a case of gas embolism or a spreading thrombosis from pulmonary vein. When the needle was withdrawn, there was blood in it. There is no doubt from the character of the respiratory excursions, that the point of the needle went through the lung tissue and that the point was either in a bronchiole or a small cavity. Some blood vessel was injured during the injection. Either a minute quantity of the nitrogen was sucked into the circulation, or it was due to a spreading thrombosis. This patient is still under observation. He has a moderately active process.

8. Infection of the pleura from without:

a. From the instruments used.
b. From the local anesthetic.
c. From the nitrogen or air used.
d. From the breaking of the needle.
e. From the skin.
f. From the hands of the operator.

These sources ought to be excluded by a scrupulous technique.

Infection of the pleura from within by puncture of a diseased focus, though of rare occurrence is a possibility. This danger increases, if a serous effusion exists. There are cases reported which ended fatally where a serous effusion was infected. Hamon and Sloan,[47] Montgomery and Speese,[48] and Case 12 of this series.

9. Serous Pleural Effusion. The recognition of the development of a pleural effusion during the treatment is of great importance. It may develop any time after the induction of the pneumothorax when the lung is wholly or only partially collapsed. In some cases the effusion developed after the patient had begun to feel the beneficial effects of the treatment, either during the first few weeks or after many months. In this series the early appearance of an effusion has been of bad prognostic significance. Fourteen of the cases developed effusion.

In case 53 the effusion developed without any subjective symptoms. In other cases a few days before its onset, especially after a nitrogen injection, the patient began to complain of general malaise, slight headache, gastric disturbances, soreness and pain on the operated side. There may be a slight or rapid rise in temperature, sudden chill, increased cough and expectoration, a feeling of increased tension throughout the chest. In most cases these symptoms gradually subside within two or three weeks. In the cases where the temperature and cough persisted the disease in the non-compressed lung progressed unfavorably.

Case 8. C. G. Advanced chronic process, marked infiltration throughout the left lung. Cavity in upper lobe. Healed process on the right. Ambulatory. Has kept at his work during treatment. Left lung completely collapsed except the apex which is adherent. Serous effusion twelfth month of treatment. This patient had been slowly improving and attending to his work in a store. The effusion developed rapidly and with alarming symptoms, *i.e.* sudden chill, fever, increased cough and expectoration, difficult breathing, a feeling of constriction about the chest, pain in praecordia and a sense of impending death. The symptoms gradually subsided after about three weeks. Some months later the effusion took on the character of tuberculous empyema. This was partially aspirated and nitrogen injected to maintain the lung collapsed.

Case 12 M. D. Advanced chronic process two years' duration; extensive infiltration throughout the right lung, activity on the left. Ambulatory. Kept up and about. Partial collapse, lung adherent posteriorly, adhesion anteriorly. Serous effusion sixth month of treatment. Infected from breaking hypodermic needle and its remaining imbedded in the lung.

Case 20. P. C. Far advanced bilateral, extensive on the left. Up and about. Partial collapse on account of adhesions. Serous effusion second month of treatment. Increased activity in non-compressed lung.

Case 24. E. M. Far advanced bilateral process, extensive on left; cavity. Partial collapse on account of adhesions. Serous effusion fourth month of treatment. This case is discussed in the previous article, (Part 2.)

Case 27. J. F. Advanced process marked on the right; cavity. Ambulatory. Complete collapse. Effusion gradually absorbed. Patient married, suspended treatment. Process quiescent.

CASE 29. P. B. Extensive process throughout the right lung. Slight process on the left. Partial pneumothorax on account of adhesions. Serous effusion sixth month of treatment. Good compression obtained. Effusion gradually absorbed in six weeks. Lung reëxpanded; treatment suspended. It was impossible to inject nitrogen into the pleural cavity as the visceral and parietal pleura had become adherent. Except for the first two weeks of treatment, patient continued at his work. Process active.

CASE 36. L. C. Bilateral process, advanced process marked on the left. Only a partial pneumothorax on account of adhesions. Small serous effusion fourth month of treatment. Increased activity in non-compressed lung. Treatment suspended.

CASE 42 M. K. Bilateral process, advanced process marked on the left. Complete pneumothorax. Serous effusion sixth week of treatment; gradual absorption of the effusion. Patient refused to continue treatment. Reëxpansion of lung. Process active.

CASE 44. C. L. Bilateral process, advanced process marked on the left; cavity hemorrhages; bedridden. Partial collapse on account of adhesions. Serous effusion second week of treatment. After effusion became a light tuberculous empyema which was aspirated and replaced by nitrogen. Treatment kept up for nine months; the lung allowed to reexpand. Process quiescent. General condition markedly improved.

CASE 53 N. G. Advanced process on the left. Complete collapse. Serous effusion the sixth month of treatment. No disturbance. Gradual absorption ninth month; lung fully reëxpanded; treatment suspended; process arrested. X-ray chest: Left chest contracted and less radiant than right. Heart and great vessels displaced to the right. Dense mottled process at left apex with bands extending across chest. Few small mottled areas, upper lobe.

CASE 59. T. O. Far advanced bilateral, extensive on the left; cavity; bedridden. Slight pneumothorax on account of adherent lung. Serous effusion third week of treatment. Disease progressive.

CASE 60. A. M. Bilateral process, advanced process extensive on the left. Complete pneumothorax. Serous effusion third week of treatment. The effusion was aspirated and not replaced by nitrogen; the lung re-expanded. The disease became progressive.

CASE 61. Process in right upper lobe. Recurring hemorrhages. Complete pneumothorax. Serous effusion sixth month of treatment; slight discomfort; gradual absorption of fluid; pneumothorax maintained by nitrogen injections. Patient in excellent condition. Working.

CASE 70. F. Advanced process marked on the left; cavity; old process on the right; partial pneumothorax on account of adhesions. Serous effusion third month of treatment. Gradual subsidence of symptoms.

Cases 36, 43, 44 and 59 developed the effusion while they were still abed; the other cases were more or less active, being up and about. The Roentgen plates in 53 and 60 showed no evidence of adhesions. As the effusion developed late in both these cases, chilling and the repeated trauma to the pleura from the punctures may be considered important factors in its production. In the other cases high intrapleural pressure and the breaking of adhesions were the probable chief factors.

In four of these cases the fluid was aspirated and examined by Professor Wolbach of the Harvard Medical School, and found to contain tubercle bacilli. Microscopically the predominating cells were lymphocytes. If the fluid is not absorbed, the longer it remains it gradually loses its clear character, becomes cloudy, thicker and richer in morphological elements, and has all the appearance of a tuberculous empyema. In cases 8 and 12 where the effusion had become of this character, tubercle bacilli were readily found in a stained specimen.

I consider these effusions to be unfavorable complications in that the presence of a large number of tubercle bacilli in the pleural cavity increases the absorption of toxins; nevertheless they must be interfered with as little as possible unless they become too large, or show continued unfavorable symptoms, such as continued pyrexia, marked distress and disturbance to the adjacent organs, or its character changes from serous to purulent. Danger of infection becomes greater at secondary injections, as the fluid is an excellent culture medium.

At regular intervals it is well to measure the intrathoracic pressure and if it be found excessive to remove some of the fluid. If, on the other hand, the pressure is too low, the required amount of nitrogen should be introduced to maintain the lung compressed. Every case is a problem in itself, to be studied and judged separately.

10. Purulent effusion — Tuberculous empyema.

A serous effusion may be transformed into a purulent one by the introduction at the subsequent injection of pathogenic germs from a faulty technique. It may also be due to some intercurrent infection, appearing as a sequela of a tonsillitis, the rupture of an adhesion on the visceral side or following a perforation of the lung.

Repeated injuries to the lung at subsequent injections may bring about in the injured part a localized tuberculosis and if the injury should take place where a tuberculous focus exists this may break and its secretion products be thrown into the pleural cavity, and may give rise to a purulent effusion. Puncture of a cavity wall may do the same.

Pleural adhesions are in general composed of tuberculous infiltrated tissue. In breaking these. they may be transformed from a closed to an open tuberculous focus. The surface of the pleura may become a tuberculous ulcer, and its

secretion products be thrown into the pleural cavity. A certain danger is therefore encountered in breaking these adhesions by pressure.

Hornung[49] mentions two cases (one proving fatal) where the breaking of an adhesion on the visceral side caused a perforation of the compressed lung with a resulting spontaneous pneumothorax. In the second case the perforation closed in a few days and was followed by an exudate serous in character and rich in lymphocytes.

Parker[50] in 1882 treated certain tuberculous empyemas by the withdrawal of the fluid and subsequent injections of filtered air. Forlanini[51], Vasquez[52], Potain[17], and Kuss[53], have treated some tuberculous empyemas and recurring serous effusions in this way.

11. Pain due to separation of the pleural surfaces and the stretching of adhesions.

The pain may be referred to the scapular region or to any part of the operated side. Sometimes it is referred to the other side. This may be accounted for by the stretching of adhesions, as the lung expands and may be accentuated by the respiratory movement and by the movements of the arm on that side. Very small amounts of nitrogen have sometimes caused considerable pain (especially at the first insufflation) necessitating morphia. I have often been surprised, however, to see cases with adhesions which were entirely free from pain. In one case, whenever a positive pressure above 3 cm. was obtained, the patient had a great deal of pain throughout the left chest front and back, which was also referred to the right.

Four cases which complained of pain before the induction of the pneumothorax, were free from pain after a few insufflations. The pain may be considerable at the time of the injection. Often times the pain will be more marked an hour or more after the injection. In two cases it was necessary to give morphia to relieve the intense pain. In some cases the pain was localized in the lower part of the chest and made worse with each respiratory act and cough. In other cases there was a general feeling of discomfort and a drawing sensation throughout the opposite lung. The treatment for the pain is absolute rest, chest swathe and as a last resort morphia.

12. Weight: At first most patients lose weight. Oftentimes there is a marked loss, especially whenever a severe reaction has taken place following an injection, or from the onset of an effusion. At first the weight may only vary a few pounds; then as a general improvement takes place there is a slight gain. There was no gain in weight in the advanced cases, while the pneumothorax was maintained.

CASE 27, a young woman with bilateral disease, an extensive process throughout the left lung, during the first three months of treatment lost 20 pounds; then the weight remained stationary, but Case 61, a unilateral case with recurrent hemorrhages, having no cough or fever, gained 30 pounds in six months under artificial pneumothorax treatment.

CASE 69, a young woman with bilateral disease, extensive on the left, under strict rest treatment, had gained 20 pounds in weight, but as the disease was slowly progressing, artificial pneumothorax treatment was undertaken and has been kept up for the last 22 months. Since commencing treatment she has lost 20 pounds but her general condition has improved. For the last eleven months she has been up and about, taking moderate exercise and maintaining her present weight. She has no cough or fever; there is no activity in the non-compressed lung; her general condition is good.

Loss of weight may be accounted for by the fever, the reaction following an injection, namely, increased amount of toxins liberated into the circulation causing general malaise, gastro-intestinal disturbances, rapid pulse and pain. Not keeping at rest. Displacement of liver and stomach, giving rise to digestive disturbances. Any one of these factors interfere with the intake and increase metabolism. Brauer lays emphasis on nervous dyspepsia due to pressure on the vagus nerve. It is important that patients undergoing treatment should keep as quiet as possible, especially when running a temperature or high pulse. Ultimately when treatment is suspended and while the pneumothorax is absorbing, there is a steady and considerable gain in weight in most cases. When the lung has fully expanded the gain is most marked in the absence of complications.

Dyspnoea following an injection or from the onset of a pleural effusion may be an urgent symptom, this being especially true in cases with bilateral involvement either from too high a pressure interfering with the function of the non-collapsed lung or from cardiac embarrassment. In two cases nitrogen had to be withdrawn to relieve the condition.

The effect on the non-collapsed lung and on the heart has been discussed in Part II.

PART IV.

THE RESULTS OF THE PNEUMOTHORAX TREATMENT.

In judging the results of the treatment it must be understood that in the majority of the patients the disease was in the third stage and many of these were accepted for treatment simply to see how much could be done in the relief of symptoms, realizing beforehand that they were beyond hope on account of the extent of the disease in the better lung. Except in a few of the cases the treatment had to be carried on in the home and some came to the office. The latter I strongly advise not to do except in the rarest occasions.

Covering a period from April, 1911 to December, 1914, the number of patients receiving

treatment has been seventy, and the number of punctures made about 900. The greatest number of injections given one patient has been 55. The highest amount of nitrogen injected into the pleural cavity at one time has been 1800 cc. The youngest patient was 16 and the oldest 55.

In ten patients it was impossible to enter the pleural cavity after several attempts had been made. Eight of these have since died.

Of the remaining sixty patients that received treatment, five received one injection; of these, three have since died.

One patient received two injections and two three injections for the purpose of controlling severe hemoptysis, being successful in two. I have lost track of one of these, the other, a young Italian farmhand in Arlington has enjoyed perfect health for the last three years.

Of the patients treated fourteen lost tubercle bacilli from their sputum.

In thirty-one cases we succeeded in forming a partial pneumothorax, which was effective in twenty-four cases. In these twenty-four hopeless cases, a very favorable effect was produced in the reduction of the fever, cough and sputum; a more hopeful outlook and a general sense of well being. Thirteen of these have since died—one from infection. The remaining eleven are still under observation. Nine are able to work, and in six of these, the disease is arrested. Two cases are still under treatment.

A partial pneumothorax, then, will in many cases bring symptomatic relief, and occasionally an arrest of the disease.

Forlanini says: "To obtain the curative effects from the pneumothorax, it must be of a definite volume and tension and be kept at that volume without material variation or interruption, so as to maintain the immobilization of the lung during the whole period of treatment. A pneumothorax that does not completely fulfill these conditions will fail in its object. A recurrence of respiration or of the pathological sounds during the treatment necessarily brings about a persistence or renewal of the destructive process." Such a pneumothorax can be obtained only where the pleural cavity is free or where the adhesions can be readily reduced by the pressure and then only where the other lung is and continues practically sound or existing lesions remain inactive or retrogress. The number of such cases will naturally be very limited at the present time.

In twenty-one patients it was possible to form a complete pneumothorax which was effective. One of these was an incipient case; five were moderately advanced cases; two were non-tuberculous, namely a bronchiectasis and a lung abscess. The remaining thirteen were third stage cases with bilateral involvement. Two of these have since died and one, two years after suspending treatment, having gone back to his work of brass polisher, the disease became active. The other, a boy of sixteen, died three months after suspending treatment from intestinal tuberculosis.

Three cases suspended treatment of their own accord, the disease being quiescent.

In three cases treatment had to be discontinued on account of increased activity of the process in the better lung.

Four cases are still under treatment; case 69 has had a complete pneumothorax for twenty-two months and has been free from symptoms for eleven months. Case 61 is a young man who had severe recurring hemoptysis before commencing treatment. The diseased lung will be maintained compressed a full year.

CASE 62, a patient of Dr. Leslie Spooner, maiden lady of 34, with bilateral disease extensive throughout the left with a cavity between the second and third rib. In spite of rest treatment for one year the disease progressed. She entered the Samaritan Hospital in May, 1914, where artificial pneumothorax treatment was given through the kindness of the hospital staff. There has been steady gradual improvement in all her symptoms from the start. We believe that the combined treatment will eventually completely arrest the disease in this otherwise hopeless case.

RE-EXPANSION OF THE COMPRESSED LUNG.

The determination of the point at which to suspend the nitrogen injections and allow the lung to re-expand, is a grave problem. The time varies according to the nature of the lesions, not only in the compressed lung, but also in the "other lung" and the general condition of the patient. When we consider the gravity of tuberculous lesions, especially in advanced cases of phthisis (and also of the non-tuberculous lesions in lung abscess and bronchiectasis) it is apparent that the pneumothorax must be kept up for a long time. In some cases months; in others years; and perhaps, as Forlanini says, sometimes indefinitely on account of the anatomical changes that have taken place. To specify a period applicable to all cases is impossible, so much do conditions vary. Saugman believes in erring on the side of keeping the lung compressed a longer rather than a shorter time, so that the treatment does appear wearisome, troublesome and expensive; but this is also true of other treatments.

Whenever the lesions in the non-compressed lung show signs of diffusion, or increased activity, or dyspnea becomes an urgent symptom, it is best then to suspend the injections and it may even be well to aid re-expansion by the withdrawal of some of the nitrogen. This latter course may be of rare occurrence, but is to be resorted to in case of hemorrhage or of any serious involvement of the non-compressed lung. It will always be problematical how much can be done in any particular case, even with a properly created pneumothorax (for other factors play an important part) and perhaps the process might have progressed without the pneumothorax.

In the following seventeen cases treatment was suspended and the lung was allowed to re-expand gradually by the absorption of the nitrogen:—

Three of these cases were non-tuberculous cases. Of the remaining fourteen cases, one was an incipient case, six were moderately advanced cases and seven were third stage cases.

Case 1. A married woman, 29 years old, with a moderately advanced unilateral active disease, having cough, fever, night sweats, loss of weight and strength and tubercle bacilli in the sputum. The pneumothorax was maintained for one year. She has had a fully reëxpanded lung for two years. Has no symptoms, is 25 pounds heavier and doing all her housework.

Case 2. A married woman of 29, with a moderately advanced bilateral process similar to Case 1, but with a slight process in one apex and blood streaked sputum. Pneumothorax maintained for four months. Then she moved into the country. Has had a fully reëxpanded lung for three and a half years. No symptoms. General condition excellent. Has given birth to one child since.

Case 4. A young woman 20 years of age with incipient phthisis, cough, fever, general weakness, loss of weight. Pneumothorax maintained for six months. Meanwhile married. Lung fully reëxpanded the last three years. In excellent condition and has had two children since.

Case 11. A young man with advanced process in right upper lobe, small cavity, blood spitting, loss of weight and strength. T. B. sputum. Pneumothorax maintained for eight months. Improvement in all symptoms, gain in weight and strength. Kept up and about during treatment. Married and suspended treatment. One year later active sign of disease in reëxpanded lung. Treatment was suspended too early. Patient is in good general condition, although there is active disease in right apex. Working.

Case 14 A young farmer, 32 years of age, with severe uncontrollable hemoptysis of 14 days' duration. Hemorrhage from left lung. Control of hemoptysis. Lung completely reëxpanded for the last three years; general condition excellent; free from symptoms. Working.

Case 15. A man of 41 with extensive process throughout the left lung; moderate infiltration of the right apex. Pneumothorax maintained for only three months. Lung has been fully reëxpanded for two and one-half years. Disease moderately active. Treatment in this case suspended too early.

Case 21. An Italian laborer with a non-tuberculous abscess in right upper lobe of six months' duration. Pneumothorax treatment kept up for five months. Lung has been fully reëxpanded for the last two years. Is in good general health and free from symptoms. Working.

Case 22. A man 40 years of age with bronchiectasis of the left lung. Ill one year and for three months unable to sleep lying down on account of cough and large amount of sputum coming up into his mouth. Loss of weight and strength. Pneumothorax maintained for one year. Relief in all symptoms. Kept up and about except for two weeks during the whole period of treatment. Lung has been fully reëxpanded for one year. Free from symptoms. General condition is excellent. Clinically well.

Case 23. A young Italian girl of 20 with bilateral disease of six months' duration, marked infiltration throughout the left, slight at the right apex, having cough, fever, night sweats, loss of weight and strength, T. B. sputum. Complete collapse of the left lung was maintained for nine months when in the absence of symptoms and general improvement treatment was suspended. She has had a fully expanded lung for a year and a half, with no signs of disease; has gained 27 pounds in weight and is enjoying perfect health.

Case 25. A young man 25 years of age, bilateral active process, extensive on the right. Ill one year. Pneumothorax of right lung maintained for eight months. Rest treatment continued all together for 20 months. Lung reëxpanded now one and a half years. Disease arrested. Sputum free of T. B. General condition excellent and marked gain in weight. Working.

Case 26 A young man 23 years of age with a moderately active process in right upper lobe. Cough, fever, night sweats, blood spitting, loss of weight and strength. Pneumothorax maintained for four months. Lung has been fully reëxpanded for the last three and a half years. Free from symptoms. Gain in weight and strength. Working. Clinically well.

Case 33. A young woman with bilateral process, marked infiltration throughout the left lung. Slight activity in the right. Loss of weight and strength. Vesperal fever, cough, T. B. sputum. Partial effective pneumothorax maintained for eight months. Lung reëxpanded; disease arrested; general condition good.

Case 44. A young man of 30 with a chronic active bilateral process of three years' duration. Cavity, large amount of foul sputum, severe cough, fever, night sweats, blood spitting. T. B. sputum. General condition poor. Partial pneumothorax which was fairly effective, later pleural effusion developed, which maintained compression. Partial compression of left lung for six months with rest treatment. A hopeless case in which the compression has improved the general condition of the patient; gaining all the time; sputum still contains T. B. Present outlook favorable. Compression should have been maintained much longer, but it was impossible to do so on account of the distance the patient lived.

Case 53. A woman of 40 years of age with marked infiltration of the left lung. Fever, a distressing, harassing cough, sputum with T. B. General condition poor; disease progressive. Pneumothorax and hydropneumothorax maintained compression for nine months. General improvement. Lung fully reëxpanded. Disease arrested; free from symptoms. General condition good.

CASE 54. A woman of 44 with an active bilateral process, marked throughout the left; disease progressive, beginning laryngeal involvement. Pneumothorax maintained for 11 months. Improvement in the general condition; sputum free of T. B. Treatment suspended too early. Lung reëxpanded; disease active. As long as the pneumothorax was maintained, the general condition remained good.

CASE 55. A young woman with progressive disease throughout the left lung. Pneumothorax maintained for one year. This case was disappointing, as the improvement was not what one would expect, as the patient runs a little temperature. Present condition is good; perhaps the disease might have progressed without the pneumothorax; certainly the treatment has done her no harm.

CASE 58. A man of 37 with chronic diffuse bronchiectasis of the right lung and to a lesser extent in the left lower lobe. Symptoms of cough and a large amount of foul sputum since childhood. Symptoms progressive. An effective partial pneumothorax was maintained for seven months. Treatment was then suspended. Marked symptomatic relief. Present condition of the patient is best described by himself, seven months after suspending treatment:—

"Regarding my condition, I am weighing 138 pounds. My expectoration is about 1-5 what it was previous to treatment by artificial pneumothorax and I weigh now seven pounds more. I can now go in comparative comfort in public, can now sleep nights—a thing I hadn't done in three years; the odor has practically left—a great blessing—except at times when it is only slightly noticeable. My complexion has cleared and all my friends are constantly remarking my changed appearance."

In all the cases with few exceptions, the treatment was carried out under trying circumstances in the patient's home. It will be readily understood that if the treatment is to be carried out properly, it must be done in a hospital or sanatorium, where complete control of the patient is to be had; the combined treatment will then give the best results.

It is to be hoped that with the necessary wisdom which comes with experience, the method will be applied on a larger scale combined with sanatorium treatment, earlier in cases where the disease shows a progressive tendency and not wait to apply artificial pneumothorax as a last resort.

I wish to express my thanks to Doctors Walter J. Dodd, George Holmes and Ariel W. George for the fluoroscopic and X-ray work, and to Doctors Joseph H. Pratt, N. K. Wood and I. Gerber of Providence, R. I., for patients and help received in their care, and to Prof. Wolbach for bacteriological work.

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THE ACTION OF PITUITRIN UPON ACUTE HEART FAILURE AND INCOMPENSATE HEART LESIONS.*

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[A Clinical Study from the University of Maryland Hospital, Baltimore, Md.]

IMPRESSED by the valuable results of pituitrin in gynecological and obstetrical work,[1] and based upon the marked physiologic action of pituitrin upon the unstriated and striated muscular fibres, I undertook the present clinical study, especially in cases where, with a failing heart, immediate action becomes necessary, and where the usual remedies at hand, digitalis, strophanthus, etc., require a certain time until their action becomes noticeable, and where a more expedient remedy is much desired.

Before entering upon the discussion of the clinical observations and physical actions of pituitrin, a brief extract of the physical findings of patients treated may precede. So far as my knowledge goes, pituitrin had not yet been tried in the category of cases upon which I am to report.

CASE 1. Jan. 3, 1914. Incompensate endocarditis, general anasarka. P. R., age 62, widower.

When first seen patient was short in breath, propped up in bed, pulse accelerated, irregular, easy depressible; heart limits: apex beat in fifth inter-

* Read at the fifteenth annual meeting of the American Therapeutic Society, held in Albany, N. Y., May 28 and 29, 1914.

costal space one and one-half inches outside from mammillary line, two inches to right side from sternal border to upper border of third rib. Soft blowing systolic murmur over mitralis, transmitted to left axilla, accentuation of second pulmonic, first aortic sound indistinct, second accentuated, soft systolic murmur over tricuspid, liver enlarged, spleen just palpable. Blood pressure—126 systolic, 82 diastolic, pulse 68.

One injection (1c.c.) of pituitrin in the evening subcutaneously, next morning (Jan. 4) patient more comfortable, heart dullness one-half inch to right side of sternal border, apex beat in mammillary line, lower border of third rib. The heart sounds and murmurs are more distinct. Pulse 84, stronger and fuller, intermittency not so marked, occurring between 16-17 beats. Edema disappeared, blood pressure 154 systolic, 86 diastolic.

On Jan. 5, pulse 84, blood pressure—systolic 156, diastolic 82. Heart limits remained the same, the character of the murmurs did not change. After reduction of the size of the heart, patient was started on digitalis medication (tincture) of which he partook irregularly, min. x. 3 times a day. The patient then, on account of lack of food and lack of understanding, gradually became drowsy and at times even delirious, so that removal of the patient from his home to the hospital was ordered. He remained there about ten days and died under the symptoms of cardiac and renal insufficiency and pulmonary edema. During that short time of observation the size of the heart had not changed, but probably the heart muscle was too exhausted for complying with its normal physical duties.

A post-mortem was not granted. It may be concluded that in this instance the volume of the heart was rapidly reduced in the transverse diameter, at the base the difference amounted to 2-3 inches, at least in height the diminution was about ½ inch. At the same time with the increased pulse-rate, the irregularity (arrhythmia) disappeared, an increase in the systolic pressure of about 28, an increase of the diastolic pressure of about 4 mm. was observed.

It may be hinted to the possibility that added to the denutrition, the general arteriosclerosis, renal insufficiency, the pituitrin might have unfavorably influenced the cerebral circulation and venous stasis so that in cases past a certain age the use of pituitrin may not act as efficiently as desired.

CASE 2. I. H. C., age 33. Diagnosis: acute dilatation of heart, nephritis and lues. Patient an anemic, poorly nourished man, laborer, in sitting position with marked dyspnea, general anasarka, examined on Jan. 13, 1914.

Precordial region bulging, apex beat in 7th interspace anterior axillary line extending 5¾ inches outside to left of midsternal line and 3 inches to the right of midsternal line, upper limits in 3rd interspace, absolute dullness reaches the right sternal border, the upper border of the 3rd rib, and coincides with the apex beat, at oscultation a double blowing murmur is heard over the mitral and tricuspid area, accentuated 2nd pulmonic sound, first sound replaced by a soft murmur, the same condition is found over the aortic area. Pulse 115, respiration 30, one ampule of pituitrin, 1 c.c., injected subcutaneously.

Jan. 14. Apex beat inside of anterior axillary line, absolute dullness left sternal border, relative dullness right sternal border. The heart sounds are more distinct, also the murmurs. Pulse 95, respiration less accelerated, blood pressure on the first day 140 systolic, 70 diastolic; on the 15th, 150 systolic and 90 diastolic. The patient feels more comfortable and shows marked improvement. After the pituitrin the patient was given a course of tincture of digitalis, min. x t. i. d., and a gradual improvement became noticeable. During the entire observation small traces of albumen, hyaline and a few granular casts were found. Wassermann reaction markedly positive, luetin slightly indicated.

The heart of the patient in the further course of observation did not show any more dilatation, pulse was still accelerated but gradually came down to 70 regular beats per minute. The blood pressure showed a slight decrease, 130 systolic, 100 diastolic, about one month after the one dose of pituitrin was given.

In this instance we are also impressed with the rapid diminution of the size of the cardiac dullness within the first 24 hours after the pituitrin medication. The difference in the transverse diameter was at least 2½-3 inches, the height of the cardiac dullness seemed to be not much influenced. No change in the systolic blood pressure, a slight increase of 20 mm. in the diastolic blood pressure could be noticed, also a slight reduction in the pulse rate.

CASE 3. Patient M.L., age 43, female. Diagnosis: Chronic endo- and myocarditis after rheumatism. Several recurrences of myocarditis since 1905, examined on Mar. 17, 1914; bulging precordial area, apex beat in anterior axillary line, heart action very forcible, cardiac dullness 5¾ inches to left, 2¾ inches to right from midsternal line, upper border of 2d rib, transverse diameter 8½ inches.

Patient was given one ampule of pituitrin subcutaneously on Mar. 18; the cardic area was found: Apex beat inside of anterior axillary line 1 inch outside of right sternal border. The heart action was less irregular, the difference in the transverse diameter of the heart was about 1½ inches. Another injection of pituitrin was given on the same day, and on Mar. 19 the following measurements were obtained:

Apex beat 4½ inches to left, ⅜ inch in the right of midsternal line, oblique diameter 6 inches, height 3 inches; the dullness, found on the previous day, in the 4th interspace in the left pleural sinus, had cleared up, respiration became more distant. Pulse intermittent every 5-6th beat. Pulse-rate on Mar. 17, 86 to 85, on the 18th, 84 to 90, on the 19th, 87 to 80.

Blood pressure before pituitrin medication 130 systolic, 110 diastolic. On the 20th 110 systolic and 70 diastolic. Before pituitrin medication was administred, the patient received strophanthin subcutaneously, but no improvement could be noticed, also digitalis medication seemed to have no beneficial effect whatsoever, on the contrary, the patient presented a higher and more irregular pulse-rate and complained of digestive disturbances.

The urinary output on the 17th was 720 c.c. compared with 1000 c.c. intake. On the 18th, output 320, input 480; on the 19th, output 960, input 1000

c.c. That figure was maintained during the next few days of medication.

After the described pituitrin medication the patient did not receive any further medicine. She went through a period of relative well-being. The urinary secretion was as follows:

	Oz.	Col.	React.	Sp. gr.	Sug.	Alb.	Urea.	Sediment.
May 1, 1914	16	Dark straw		1025	0	0	8.64	Leucocyte
May 2, 1914	14			1024	0	tr.	7.8	
May 4, 1914	30		Acid	1025	0	0	—	Ur. acid
May 5, 1914	30	Dark straw	Acid	1025	—		18.0	Epith cells
May 6, 1914			Acid	1022	—	tr.	21.6	Leucocytes
May 7, 1914	20		Acid	1023	—	tr.	12.0	

On May 10 the blood pressure gave systolic 110, extra systolic 115 and diastolic 70. Then the patient had a violent vomiting spell, the reason of which could not be properly ascertained, consequently the patient on May 16 entered into a new relapse of myocardiac insufficiency, cyanosis became apparent, and the physical heart findings were as follows:

Apex beat in 6th interspace in anterior axillary line 7¼ inches to the left of midsternal line, the heart extended to the right 2 inches outside of the midsternal line. The height was 5½ inches, the oblique diameter 11 inches, the pulse-rate was 92, systolic blood pressure 118 (auscultatory) diastolic 78, liver extends 3 fingers below costal margin and 3½ inches to the left of midsternal line. The patient received another dose (1 c.c.) of pituitrin; two hours later the systolic blood pressure was 124, diastolic 80, the pulse-rate was 85. Two days later (May 18) the heart extended in its transverse diameter 8½ inches, in its oblique diameter 9¾ inches and 2 fingers from the right sternal border. The difference with two days previous ¾ inch for the transverse, 1¼ inches for the oblique diameter. The following day (May 19) the transverse diameter of the heart amounted to 6¼ inches, 7 inches for the oblique diameter, 4½ inches for the height.

The right relative heart dullness was found inside from the right sternal border, pulse 78, systolic blood pressure 118, diastolic blood pressure 76.

As compared with the previous urinary secretion there was a slight increase of 10 oz. to be observed during the three following days after the pituitrin medication. The patient felt very comfortable until the next relapse. On June 6 the systolic blood pressure was 120, on the ninth a marked arrhythmia of the heart and indistinct quality of the murmurs over the mitral area was noticed.

On the 10th the heart presented the following size: Transverse diameter 5½ inches to the left, 1¼ inches to the right (total 6¾ inches), 8½ inches for the oblique diameter and 4¾ inches for the height was recorded. Previous to the administration of 1 c.c. pituitrin the systolic blood pressure was 124, the diastolic blood pressure 90; the pulse was rated at 80 of irregular quality with extra systolis. Two hours after the pituitrin was given the blood pressure was 125, the diastolic blood pressure 90, pulse was 78 and was a little more regular than previously. On the next day (June 11) the transverse diameter was 6½ inches, the oblique 8 inches, the height 5 inches. The absolute cardiac dullness reached as far as one finger to the right of the left sternal border; the relative dullness extended one finger outside of right sternal border. The heart sounds were still indistinct, distant, the murmurs were found of lesser intensity. The pulse 78, more regular, but not very well sustained. The patient subjectively felt considerably relieved. As a precaution she still remained in bed. On the 13th patient passed a restless night on account of a decayed tooth. The heart condition maintained itself satisfactorily, so the patient on the 17th was permitted to rest in the chair for one-half hour. Following this change, the pulse and respiratory rate became increased. On the 18th the patient was allowed to walk five yards, which exercise resulted in a considerable increase of pulse and respiration. On account of a slight discomfort and hypersensitiveness over the cardiac area, the patient remained quiet. The heart examination on the 20th again showed an increased size of that organ, namely: Transverse diameter in 6th interspace 6½ inches to the left, 3 inches to the right of midsternal line, oblique diameter 10½ inches, upper limits extending to upper border of the third rib, height 6½ inches. The heart action is forcible, gallop rhythm, marked arrhythmia with extra sytolic contraction. Rate of apex contraction 111, radialis pulse 84, veinous pulsation synchronous with apex beat. Soft double murmur over mitralis area, marked accentuation of second pulmonic sound recorded. Liver extends 3 inches below right mammillary line with enlarged left liver lobe, 3½ inches to left of median line, 2 inches below xyphoid process. Liver very tender on touch, spleen just palpable below costal margin.

The patient was given another ampule of pituitrin on the same date. The systolic blood pres-

sure was 120, diastolic 90, pulse pressure 32; 24 hours after the pituitrin injection the systolic blood pressure amounted to 138, diastolic 100; pulse pressure 38. Patient felt much more comfortable, the heart showed the following size:

Apex beat sixth interspace 1 inch inside of anterior axillary line, transverse diameter 6¼ inches to the left, 1¼ inches to the right of midsternal line (total 7½ inches), oblique diameter was reduced to 9¼ inches the height to 5¼ inches. Absolute cardiac dulness ⅛ of an inch inside of right sternal border, upper border of third rib, relative dulness one finger outside of right sternal border. The heart murmurs are more distinct, rate of apex beat 117, radialis pulse 117, pulse better sustained, fuller, slight dicrotism noted, not to the same extent as previous to the pituitrin medication.

Liver dulness is one finger below costal margin in right mid clavicular line. The left liver lobe is smaller, extends to 1½ inches outside to left of midsternal line.

Hyperesthesia noted on skin over cardiac and hepatic region. Patient objectively feels more comfortable.

Judging from this brief observation it would seem that also in this instance the pituitrin acted favorably in reducing the size of the cardiac muscle. This reduction amounted to 1½ inches within 24 hours; within 48 hours it reached 3¼ inches in the first instance.

During the second relapse, which happened 60 days later, the transverse diameter diminished in 24 hours ¾ inches, within 48 hours 3 inches. The oblique diameter differed in 24 hours 1¼ inches, in 48 hours 4 inches; the height in 48 hours amounted to 1 inch less (4½ inches).

During the third relapse, which happened 81 days after the first pituitrin medication and 21 days after the second pituitrin dose, the transverse diameter diminished in 24 hours ¼ inch only, for the oblique ½ inch; for the height hardly any difference could be noted. It must be said that the heart had not dilated so much as when examined on the previous occurrences.

During the fourth relapse, which happened 91 days after the first, 31 days after the second, 10 days after the third attack, and which was associated with a considerable dilatation, the reduction within 24 hours amounted to 2 inches in its transverse, 1¼ inches in the oblique diameter and 1¼ inches in the height.

It is our opinion that digitalis being not well borne, and strophanthus not producing the desired results, pituitrin was the only means to allow the patient to rally.

The blood pressure (systolic) showed a slight decrease of 20, and the remarkable reduction of 40 in the diastolic reading at the first instance.

During the second relapse the systolic blood pressure was increased for 6 points only, and then returned to the same rate as previously. The diastolic blood pressure showed a slight decrease of 2 points, then became a little lower than at the beginning.

During the third relapse the systolic blood pressure being relatively high, did not differ, nor did the high diastolic blood pressure change.

During the fourth relapse the systolic blood pressure showed within 2 hours an increase of 10, and still increased during the next 24 hours. The diastolic blood pressure also increased.

It will be noticed that during the third relapse the difference between apex beat and radialis pulse disappeared, and that the extra systoles became less evident. The general impression of this case as far as prognosis is concerned is unfavorable. The short intervals between the relapses corroborates such an opinion. The first reduction in the size of the heart was most marked, in the subsequent observations the heart was reduced but not to the same extent. The systolic blood pressure although increased, showing a pulse pressure from 30-38, did not change materially. The pulse did not undergo a considerable change in rate. It is very likely that the reserve strength of the heart muscle has become exhausted, and if pituitrin in such an advanced condition is to give an immediate relief and change, this improvement is very likely not of a long duration. It may be further mentioned, that after some improvement was noticeable after the last pituitary treatment, the patient again became tolerant for strophanthus medication, which before did not act favorably.

Case 4. I. H., carpenter, 66 years of age. Diagnosis: aortic stenosis.

Patient when examined on March 17 presented precordial bulging, apex beat in sixth intercostal space outside mammillary line, 5½ inches to left from midsternal line, 2¾ inches to right from midsternal line, 4½ inches in height and 7½ inches in oblique diameter. Muffled mitral sounds with systolic blow, over aorta systolic murmur, over pulmonalis soft diastolic murmur, over tricuspid soft systolic murmur. Hepatic dulness not increased. Patient received one ampule of pituitrin; next day he presented the following heart limits:

Transverse diameter at apex 4½ inches to left, ¾ inches to right from midsternal line. Height, 4 inches, oblique diameter 6 inches. The heart sounds and murmurs are more distinct and of a higher pitched character. Pulse before pituitrin medication was 78, after the pituitrin it came down to 70 and remained at that rate during the patient's stay at the hospital for the next few days.

Blood pressure: Before pituitrin 150 systolic, 110 diastolic; after the pituitrin medication it came down to 140 systolic, 100 diastolic two hours after pituitrin was given. The patient improved rapidly and considerably and was even able to leave the hospital a short time after the pituitrin medication was given.

From this case we have the impression that a considerable reduction in the size of the heart dullness could be observed, namely, 3 inches in the transverse diameter, ½ inch in height and 1½ inches in the oblique diameter. The pulse did not undergo any considerable change, the systolic as well as the diastolic blood pressure showed a slight reduction.

Case 5. O. R., 60 years of age, bookbinder. Diagnosis: chronic myocarditis, general arteriosclerosis, chronic nephritis, anasarka.

Entered observation March 17, 1914; presented marked dilatation of the heart to 7 inches to the

left, and 2½ inches to the right from mid-sternal line. Heart sounds very distant, double murmur over mitral and tricuspid area, accentuated second pulmonic sound; patient under ordinary digitalis and strophanthus medication did not improve, nor did the subjective and objective symptoms, pulse remained accelerated. Patient rapidly declined, so on March 25, 1914, pituitrin medication was tried. The cardiac dullness on that day was found to be 5¼ inches to the left, 3½ inches to the right from mid-sternal line, height to upper border of third rib 5 inches, oblique diameter 9 inches. Collection of fluid in left pleural sinus up to the fourth interspace. Patient was very dyspneic, restless and cyanotic. Pulse 100-115, irregular, easily depressible. Blood pressure amounted to 150 systolic, 110-115 diastolic. Albumen and granular casts present at urine examination; 24 hours after the pituitrin medication the limits of the heart presented themselves as follows:

Four and three-fourths inches to left, 1¾ inches to right from midsternal line, height 5 inches, oblique diameter 7½ inches. Blood pressure: 120 systolic, 90 diastolic; pulse 80-82; respiration 28. Patient, besides the reduction in the volume of the cardiac muscle, presented some apparent improvement, although it was not very marked: then he declined and died two days after the pituitrin medication. Pulse did not change materially, nor was it possible to control the blood pressure in the suffering patient.

In this case we notice that, notwithstanding the advanced condition, the ad maximum dilated heart showed a reduction of 2¼ inches in the transverse, and 1½ inches in the oblique diameter within 24 hours after the pituitrin medication. It is possible that if the patient would have had more reserve strength his heart would have been able to rally, but as conditions were, the lack of vital energy must be made responsible for the fatal result.

CASE 6. I. C., age 19, farmer. Diagnosis: chronic polyarthritis, acute endocarditis with acute dilatation of heart and serous pleurisy.

Heart examined on April 6. Apex beat in mid-axillary line, transverse diameter 8¼ inches, height 5 inches, oblique diameter 8¾ inches. Temperature 101 3-5-103 3-5; pulse 120, 110; systolic blood pressure 90, diastolic 60. A blowing systolic murmur over mitralis inside of mammillary line, diastolic murmur over aorta, double murmur over triscuspid, split and accentuated second pulmonic sound. Patient received on that date one ampule of pituitrin. Immediately preceding the pituitrin medication systolic blood pressure 90, diastolic blood pressure 60; two hours after pituitrin injection, systolic 110, diastolic 90. The following day the heart extended 6½ inches in the transverse diameter, 5 inches in height and 6 inches in the oblique diameter. The systolic blood pressure was 110, the diastolic 100, the pulse rate was unchanged, also the temperature. The patient, who on the previous day had been very apathic and troubled with precordial pains and dyspnea, when examined on April 7 seemed comfortably propped up, the heart sounds had become louder in character. At a later examination (after two weeks) the patient, having received no other heart medication whatsoever, presented the following measurements:

Transverse diameter 4⅝ inches, height 3½ inches, oblique diameter 5⅝; the different murmurs noticed had not changed in character.

In this instance we also have the impression that the patient, very close to an acute fatal cardiac failure, escaped such a complication, and with the rapid reduction in the volume of his heart, he was able to rally. The difference in diameter in this instance within 24 hours can be summed up as follows:

Transverse diameter 1¾ inches, oblique 2¾ inches, height—no difference. The difference in diameter observed within the first 24 hours after the pituitrin medication amounted for the transverse diameter to 1¾ inches, for the oblique diameter to 2¾ inches, whilst no difference in the height could be noticed. These differences still increased, namely: for the transverse diameter 3⅝ inches, for the oblique 3⅛ inches, for the height 1½ inches.

It seems that the beneficial action of the pituitrin was not transitional. Rest, of course, must have contributed to a favorable result. Rest alone, however, seemed not to have been sufficient for the reduction in the volume of the heart. At the present time, six weeks after the one pituitrin dose, the patient seems well, is able to walk around without any symptoms of cardiac failure.

CASE 7. W. H. M., age 61. Previous history: malaria, rheumatism, patient very irritable, auditory hallucination, insomnia, constipation, piles, Examined Jan. 23, 1914. Colitis mucipira, cardiac arrhythmia, extra systole, both tricuspid and aortic valves diseased (tricuspid insufficiency, regurgitation and aortic obstruction), enlargement of the heart to right and left, apex beat 5¼ inches to left from midsternal line, upper border of third rib one inch outside to right from midsternal line, oblique diameter 7½ inches. Absolute dullness reaches one finger inside of right sternal border, relative dullness two fingers of right sternal border. Over mitralis a rumbling first sound is heard, over tricuspid and midsternal line in fifth interspace a double murmur is heard, over aorta a soft systolic blow, which is transmitted towards pulmonalis, marked, accentuation of both second aortic and pulmonic sound. Systolic blood pressure 154, diastolic 98. Patient is given 1 c.c. of pituitrin subcutaneously; the succeeding examination shows apex beat 3⅝ inches outside of midsternal line in sixth interspace, oblique diameter 5⅝ inches, relative dullness lower border of third rib and middle of sternum, absolute dullness one finger to left from left sternal border. The murmurs quoted are more intense. During that time the patient was given besides pituitrin sodium nitrite; subjectively the patient is much improved. Arrhythmia is still present, pulse ranges between 81 and 90, systolic blood pressure 154, diastolic 82. Pulse pressure 72. The maximal intensity of the murmur is located mostly over the right sternal border in the second intercostal space with propagation towards the large vessels and downwards to the tricuspid valve. Also in this case we meet with a striking diminution in the diameters of the heart, namely 2⅝ inches in the transverse, 1⅝ inches in the oblique diameter, and a slight reduction of the diastolic blood pressure.

ANATOMICAL AND PHYSIOLOGICAL REMARKS ON THE PITUITARY GLAND AND ITS CHEMICAL SUBSTANCES.

The pituitary gland and hypophysis are situated in the sella turcica. Composed of different parts, the adenohypophysis, eventually still found in connection with the pharyngeal hypophysis, develops from the entoderm,—also called the pituitary body. The second constituent is the neuro-hypophysis, or the hypophysis proper, and develops from the nervous system. (Wiedersheim,[2] Steudel.[3]) Only within the last few years our conceptions of the physiological importance of that organ have become better defined. So since Marie's[4] description of acromegalia and the discovery by Marinesco[5] of the tumor of the pituitary gland in 1891, the interests for the functions of that organ have been aroused. The removal of the pituitary body itself in the animal experiment, causes rapid death and is preceded by muscular tremors, slow pulse and respiration, and fall of temperature. The section of the hypophysis and its extirpation is also fatal, according to R. Hoffman[7] by important changes in the spinal fluid, whilst other investigators (J. E. Street and C. R. Allen[8]) consider the hypophysis of no vital importance, but this operation caused pathological changes in the pancreas, atrophy of the testicles, gain in weight. In young animals the absence of the pituitary gland favors retarded growth, persistency in infantile characters, hypertrophy of the thyroid, atrophy of the gonads, diminution of libido, accumulation of fat in the omentum and in the retroperitoneal tissue, as recorded by Benedict and Homans.[9] There has within the last few years accumulated quite a considerable literature on that interesting chapter, for the discussion of which I would refer to a publication on the way of preparation. Only a few may be mentioned (Cushing[10, 11] R. A. Schaefer,[12, 13, 14] Schlimpert,[15, 19] Gavin,[16] Mackenzie,[17] Noel Paton and Watson,[18] Paulesco.[19]

Among the other manifestations following the lack of the pituitary gland, the lack in gain of weight, thickening of the skin, tendency to alopecia, adiposity (hypophysary), lack of development of the gonads, drop of temperature, disturbance of heat regulation, decrease in the heart and respiratory rate will be remembered. Also a considerable decrease in the exchange of carbon dioxide could be demonstrated.

Since we know that special diseases ascribed to disturbances of internal secretion are closely related to the function of the pituitary gland, as pregnancy (W. Holde,[20] Roessle,[21] Ashner,[22] and others), castration, and thyroidectomy (Zuckermann[23]) called for hypertrophy of the organ, and as thyroid and pituitary gland have a compensating effect upon each other, we must admit that the function of that organ can have no small importance for the well-being of the individual. The activity of the gland seems to start at an early period of developing life (Schlimpert[24]), and according to the anatomomicroscopical and chemical findings, changes from the normal gland take place all the time (Kohn Stumpf, Toelken, Vogel, Ashoff[25]), which according to sex show many differences (Erdheim, Ashoff[26]).

This view is also supported by the chemical analysis of the different substances obtained from that organ and by clinical observation. We have not reached a complete understanding in that matter as yet and the future may bring new material to our knowledge. The first experiments with the extract of the hypophysis were undertaken by Oliver and Schaefer in 1895.[27] They reported, after the intravenous injection, a considerable rise in blood pressure. This discovery was followed by the effect of the substance upon the uterus by H. H. Dale[28] in 1906. The active principles were obtained from the posterior part of the organ (neurohypophysis) and called hypophysin, whilst the extracts obtained from the glandular portion should have no such effect. Schickele,[29] H. Fuehner,[30] Oliver and Schaefer explained the effect obtained by the action of the extract upon the arterioles, which effect is quite different from that observed when adrenalin is given in different ways (chemically, biologically). This difference since then has been confirmed by various writers (P. Rohmer,[31] Kepinow,[32] Froelich and Pick,[33, 34] Nimulescu,[35] Matthes,[36] etc.). Chemically, hypophysin or pituitrin or pituglandol (M. Winkel[37]) is a substance insoluble in ether and in alcohol. It can be dialyzed and does not undergo destruction by heat and reducing agents. Whilst in mammals these effects were confirmed, in birds, instead of a vasoconstriction a vasodilatation resulted from the injection, which dose repeated within one-half to one hour caused a constriction of the vessels (Howell[38]). A similar fact was observed by O. Pankow[39] on rabbits; first depression followed by a rise in the pressure. Also mentioned by Schaefer and Herring[40] in their experiments. So the existence of two different substances was supposed, one acting as a dilator, the other as a constrictor. This fact was established by Popielski,[41] who in using separate extracts from the glandular, as well as from the posterior part, succeeded in the separation of two different substances, namely, the so-called vasohypertensin and the vasodilatin. The former was found to act intermittently upon the pulse action and upon blood pressure. We have to go even further in the differentiation of the effects upon the different vessels, as in mammals hypophysin has been found a dilator upon the renal artery, and a vasoconstrictor upon the coronary arteries. Fuehner,[42, 43] in his experiments isolated not more than eight different substances from the infundibular part of the gland, which are represented as crystallized basic substances (hypophysin Hoechst, B. A. Houssay[44]). The effect of hypophysin, studied by Klotz,[45] and Pankow,

can be subdivided into a rise of pressure, for a short period only, which is to be succeeded by a longer lasting, sometimes deep depression, which finally is followed by the characteristic and durable rise of blood pressure. This has also been confirmed by Fuehner[42] and substantiated by interesting charts and curves. Hypophysin attacks the smaller vessels, which answer by a contraction, and cause a rise in the pressure and so favorably influence the heart. Pankow[39] in his paper also noticed symptoms of anaphylaxis. Whilst this fact remains not confirmed, Houssay in a second injection did obtain a lesser effect than with the first application. According to the same author the substances contained in the posterior part of the gland are very powerful and last much longer in their vasoconstrictor effect than any other substance with local effect. The effect of pituitrin upon the heart muscle itself is not yet fully understood. It is generally admitted that we have to deal with a direct action upon the heart muscle itself (Pankow[39]), the effect of which is not changed by an intact or a severed pneumogastric nerve. Different from adrenalin, vagotomy followed by pituitrin does not cause acceleration of the pulse rate. Hypophysin seems to act upon some structures peripherally, through the endings of the augmentor nerves, stimulated by adrenalin. According to Watson and Noel Paton,[18] adrenalin acts not upon the heart muscle itself, but hypophysin stimulates the ventricles. Such action seems plausible in analogy to the experimental results obtained with uteri studied under the action of pituitrin (H. H. Dale,[28] Report Russ. Congr. o. Gynecolog. and Obstetrics,[46] Malinowski,[47] Fuehner,[30] Senge,[48] P. S. Pittenger,[49], F. E. Stewart,[49] etc.). In birds, in the absence of the augmentor fibres and their terminations, hypophysin increases the contraction of the ventricles.

A further action of pituitrin upon the respiratory organs should not be forgotten (Pankow,[39, 50] Froehlich and Pick[31]), where in rabbits after the intravenous injection of hypophysin a transitory check of the respiration could be observed. The inspiration ceased entirely, the expiration was spasmodic. Bronchial spasm with acute distention of the lungs in guinea-pigs was also reported, which condition could be relieved by stimulation of the pneumogastric nerve (atropin). These manifestations were attributed to the stimulation of the respiratory center in the medulla oblongata, under the influence of the vasotonic effect upon the vessels supplying that section of the nervous system. Hypophysin in its action upon the pupil of the enucleated eye ball of the frog, resembles that obtained with adrenalin. As a stimulant to the motor function of the intestine, the work of Ott and Scott,[51] Musser,[52] and Udaondo[53] may be cited. As a diuretic the observations of Magnus and Shaefer, Schaeffer and Herring, and R. v.d. Velden[54] must be mentioned. This action is attributed to a dilatation of the renal vessels, which is followed by an increase in the size of the kidneys. Likewise, the pitutirin and allied products from the hypophysis increase the tonicity of the bladder in dogs. The action upon the uterus is partly attributed to the direct stimulation of the muscular fibres, but also explained by a stimulation of the motor pelvic nerves, those that supply the motor impulses to the uterus, namely the hypogastric nerves. The action of pituitrin upon the milk glands is still under discussion, but from the papers at hand metabolism, normal and pathological, is also influenced by pituitrin. With regard to the proteid catabolism, a marked emaciation can be observed (Manson and Johnson, Falta, Crowe,[55] Cushing,[10] and Homans). Hyperglycemia and glycosuria (Borchardt, Cushing and Goetsch[56]; not endorsed by all authors,—Musser[52]) may be briefly mentioned. Further, there can be observed an increase of the respiratory quotient (Falta). Subcutaneous injection of pituitrin, according to Elfer,[75] does not seem of harmful influence upon the proteid metabolism, but favors a transitory retention of phosphor, magnesia and calcium compounds. With regard to disturbed metabolism the papers of B. A. Houssay,[44] R. v. d. Velden,[54] Römer,[58] are of interest, namely in the instance of diabetes insipidus. The latter author in animal experiments and in human patients was able to demonstrate that the extract of the intermediate part of the pituitary body decreases diuresis, which fact draws an interesting light upon the possible etiology of the disease as an insufficiency of the intermediate part of the gland. His therapeutic results obtained with that isolated product seem to vindicate such a hypothesis, which, however, will require more experimental confirmation before being generally accepted. The pituitary body, under the influence of general infections seems also to suffer. At least in diphtheria, human and experimental, several facts seem to speak in favor of the harmful action of the toxin upon that organ (H. Creutzfeld and R. Koch,[59] R. Koch[60]); also the favorable action reported on pituitrin medication in cases of rheumatic arthritis (C. Wallace and F. S. Childs)[61] would suggest a relationship of that organ to these and other infectious diseases. As seen from this summary review of the physiology and pharmacology of the pituitary gland we may conclude that that organ certainly has some if not a great importance for the human beings.

With regard to our subject under discussion, we may ask whether any definite contraindications exist as to the use of pituitrin and hypophysin. The obstetricians were the first to put up a list of cases where from a general standpoint these remedies should not be used without incurring dangerous or fatal conditions. The following authors did not think it advisable and cautioned against such conditions:—

In heart diseases, Hofstätter,[62] Malinowski,[47] Puppel[63]; compensate and incompensate diseases

of the valves, Hofstätter[62]; coronary sclerosis and stenocardia, Vogt,[64] Wagner.[65]

In arteriosclerosis, more or less advanced, Hofstätter, Vogt.[64]

In nephritides, Vogt,[64] Malinowski,[47] Wagner,[65] Puppel.[63]

In hypertension, exceeding 140 mm. pressure, Vogt.[64]

In very nervous, hyperexcited individuals, Hofstätter.[62]

Puppel's caution as to the use of pituitrin in eclampsia does not tally with the statement of Schlossberg,[66] who in these conditions obtained good results with pituitrin.

In reporting my observations on the action of pituitrin on the heart muscle, I am fully aware of the difficulty to judge the situation as yet. As a casuistic contribution to our therapeutical aims, the question is at least of interest. If from seven partly very serious cases with decompensated heart cases, two terminated fatally, whilst the other five could be successfully helped, it would seem that pituitary medication would at least be worth a further study. With regard to the two fatal cases, notwithstanding their too far gone condition, their advanced age, and possible arteriosclerosis of the vessels, nephritis, probably in connection with the venous stasis, and in the first case the possible uremic condition, the chances for recovery were very small. But still the question remains to be answered by more clinical observation, when and under which circumstances do we safely prevent a worse condition in giving pituitrin. It would be not wise to abstract from a few observations clinical laws for the future. From the preceding remarks on the pharmacology of pituitrin we may learn that a too extensive dose of pituitrin in advanced age may result in a sudden harmful rise of pressure. Of course the sudden change may be undesirable for the vessels of the brain and may be complicated with hemorrhage and apoplexy. In a weakened and tired-out myocardium it is evident that we will rapidly reduce the distended organ to a more normal size; the one difficulty remains to be found out to what extent has the reserve strength of the heart muscle become exhausted. In these cases even with little reserve strength left, there remains a possibility that pituitrin may help the immediate needs and that after the diminution of dilatation has become noticeable, the patient, before intolerant to the ordinary cardiac stimulation, may again be able to stand a careful test with these routine remedies. In doubtful cases, where we have reason to admit sclerotic changes, especially sclerosis of the coronary vessels and stenocardia, we do well to remember that pituitrin may hasten a fatal result. This is based on clinical observation, where a prolonged spasm of the coronary vessels, which in their aspect show obstructive endarteritis, an ishemia of the heart muscle would call for the symptoms of stenocardia.

Clinically and experimentally the problem of pituitary medication seems to be of great interest. I am aware that besides the clinical bedside study the entire arsenal of diagnostic means of cardiac lesions should be called for, including electrocardiagram, sphygmobolometry, etc., (Th. E. Satterthwaite[67]) in order to draw some more light upon the fine biological and pharmacodynamic affinity between pituitrin and the heart muscle. Under present circumstances such studies were impossible, so the present paper has to be limited to the clinical recommendation of pituitrin in acute heart failure with acute dilatation. Our studies with our material of cardiovascular patients, upon which pituitrin is used, is still going on. This seems justified by the results observed and also in order to circumscribe the indications, and when and where pituitrin can be safely recommended without inflicting serious harm to the patient. In connection with pituitrin medication, on a series of patients we may remember the work done in this line by Musser.[52]

It seems that pituitrin may be helpful in other pathological conditions than the heart. I would only briefly allude to cases of chronic asthma and hayfever, in which the attacks persisting for years and years, resisting all therapeutic medication have ceased entirely for months. Although encouraged by these surprising results with the combination treatment of adrenalin and pituitrin, I do not feel justified to hasten with an extensive report on these cases I have treated successfully, before more time has passed in which to judge the situation. The combination of adrenalin and pituitrin is favorably endorsed by different authors (Houssay,[44] Kepinow,[32] Froehlich and Pick,[33] Nimulescu,[35] Matthes,[36] P. Rohmer[31]). The latter author in a recent paper reaches similar conclusions to mine in the use of pituitrin in cardiac diseases. Among other experiences with pituitrin I would also briefly allude to the result of my present study of pituitrin in cases of typhoid fever. In instances of tympanites uncontrollable by any other means, and where overdistention increased the danger for hemorrhage and perforation, pituitrin 1 c.c. injected subcutaneously, relieved such a condition in a few hours. We resorted to the same medication in two cases of intestinal hemorrhage in typhoid. Rapid disparition of the blood from the stools was the result; the patents rallied and made a normal recovery. It is my impression that in these few instances the pituitrin medication saved a precarious situation, and if we had not taken the chances of a yet untried application, these cases would have to figure on our death records.

LITERATURE.

(The literature on the pituitary body, its pharmacodynamic properties, and indications has within a few years become so extensive, that in the present paper only some of the chief references can be given. The subject will be dealt with later in a more complete manner.)

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MASTITIS IN PREGNANCY, WITH REPORT OF A CASE.

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WHILE mastitis, with its etiology, pathology, symptoms, prophylaxis and treatment, is fully discussed in text-books of obstetrics as a disease of the puerperium, the chance of its occurrence in pregnancy, with its prophylaxis and treatment, is completely ignored, although some text-books do mention the care and cleanliness of the nipples during the last weeks of pregnancy as a prophylactic measure against infection after labor and during the puerperium.

However, in rare cases mastitis does occur in pregnancy, and sometimes seems to baffle every effort to prevent or check the process, as this case, which I shall speak of later, will show, and especially call attention to the necessity for prophylaxis.

The text-books usually treat of three different pathological forms of breast abscess, viz.; (*a*) Parenchymatous, where the infection takes place and the abscess forms in the acini, and the milk-forming cells are involved, and break down. (*b*) Interstitial, where infection takes place and abscesses form in the fatty and connective tissue between the acini, the abscesses often forming a chain connecting with each other; and (*c*) subglandular, where the abscess forms in the submammary fascia. Both of the first two forms mentioned were found in this case.

In regard to the etiology, the main reason why mastitis is so much more common in the puerperium than in pregnancy is that the acini are so liable to become, and often are, infected through lack of proper care of the nipples and areolae in nursing. Trauma of some sort or other may also cause mastitis, on account of the tenderness and lowered resistance of the tissues, so that, even though the best care may be taken in regard to the nipples and areolae, if the patient is below par physically, and the glandular tissues are injured by trauma, inflammation and abscess may occur on account of the weakened resistance of the injured tissues to the organisms which may be present in the blood, and which would have no effect on sound healthy tissue, but which are on the alert for a point of lowered resistance. Moreover, where the breast has been injured previously to the pregnancy, the changes in the parenchyma and surrounding tissues make the tissues already injured all the more susceptible to infection. So where mastitis occurs during pregnancy, trauma is much more apt to be the underlying cause, especially in a primipara, than infection through the nipple.

On Feb. 2, 1913, Mrs. L— called at my office complaining of a soreness in her right breast. Patient a woman slightly built and rather poorly nourished,

of a nervous and hysterical temperament, subject to attacks of dyspepsia and costiveness, for which she had previously been coming for treatment, and which were greatly improved.

She had been married the previous November, and on the night she was married, she had a fall, in which she struck her right arm against the breast, and ever since then, a certain place in it felt sore and tender to the touch, especially at the time of the menses. A hard, nodular lump was felt in the central portion of the breast, to the inner side of and almost underlying the nipple. For treatment, I gave ichthyol and belladonna ointment, to be applied to the affected breast.

The breast symptoms were greatly relieved as a result of using the ointment, and in November she became pregnant, her last catamenia ceasing Oct. 10. On Jan. 29, 1914, she called at the office with an abscess of her finger, which was laid open and a small amount of thick gummy pus evacuated. The wound was dressed with a mild bichloride dressing, and healed rapidly.

In the meantime, her signs of pregnancy were becoming more marked, and by March she was feeling the fetal movements very strongly.

On April 19, she called at the office complaining of coryza and sore throat, with attacks of coughing resembling those of whooping cough which it proved to be. In a week she was nearly well of the coryza and cough, but it was then that she began to complain of a tense, brawny lump on the inner side of the right breast, very painful to the touch. Applications of ichythyol and belladonna ointment were used, it being hoped that the inflammation would thus be drawn away, but the lump became more tender and painful the next day, so, as it was suspected that the pain might be due to early lactation aggravating the old trauma, the breast pump was used, which drew off half an ounce of milky fluid and gave considerable relief. There was no pain or discomfort at all in the other breast and the nipples of both breasts were in good condition showing no fissures or erosions. The use of the breast pump was discontinued after a couple of days, and both breasts were bandaged firmly with a Y-bandage, cold compresses of lead and opium wash were also applied to the affected breast. Meanwhile the patient seemed to run no fever, the temperature at its highest only running to a fraction over 99°. Atropine, gr. 1/100, was also given morning, noon and night, to partially diminish the breast secretion and thus lower the tension.

For a few days the patient experienced some little relief, but in spite of these measures, the lump began to gradually increase in size and become redder and more brawny, and by May 9, there seemed to be small protrusion of the mass, near the nipple, as though the abscess were coming to a head. So operation was advised, and on May 10, under ether, an incision into the mass was made near the areola, and nearly three ounces of pus were evacuated. Introduced forefinger, protected by a sterile rubber glove, into abscess cavity, breaking up adhesions and pus pockets that might be present and made a second opening at the distal end of the cavity, for free counterdrainage, syringed out abscess cavity with boric acid solution, introduced sterile adrenalin gauze wicks, and applied moist bichloride dressing, for the first day, then afterwards applied moist boric acid dressing. Diagnosis: Circumscribed parenchymatous mastitis.

The patient was greatly relieved, the discharge rapidly ceased, the cavity and sinuses grew steadily smaller, so that by May 24, the wicks were no longer needed as the sinuses were now so small, they could scarcely admit a small probe, and by the 26th, the sinuses were all filled in with granulation tissue, and the wounds were covered with healthy granulating scabs. One more boric acid dressing was applied, then the wounds were dressed with dolomol-aristol powder, as a cocoon dressing, and by June 5, they were entirely healed.

Meanwhile no change had occurred in the pregnancy, which was running a normal course.

On May 12, however, when I called to dress the breast, I found the patient had been having a dizzy spell with an attack of temporary blindness, which made me suspect a mild attack of eclampsia, but with prompt treatment in the way of calomel, bowel irrigations, and diuretics, the condition cleared rapidly, and the patient had no more attacks of the sort.

On June 8 I was called to see the patient again as she was complaining of pain and tenderness in the same breast that had been affected before, but this time the pain was on the outer aspect, there being no pain or tenderness where the former abscess had been. The breast was firmly bandaged, cold wet compresses of lead and opium wash and ice bags were applied, and saline catharsis was instituted, but in spite of all that was done to abort the inflammation, the pain and tenderness persisted, and, by the 11th, two hard painful lumps, each the size of an almond appeared, one on the outer side, in a direct horizontal radius from the nipple, and the other in the upper outer quadrant. The ice packs, and astringent compresses and bandaging, as well as the saline catharsis, were continued so that there was some diminution of the pain, but as the masses continued to grow larger, I deemed it best to operate, and arranged to do so on the 14th.

The operation had to be deferred, however, because labor set in, and I was sent for at 4.30 A.M. The labor was perfectly normal and at 8.45 the patient was delivered of a six-pound girl. In the evening the mother and baby were doing very well and the former's breast seemed much relieved, with less tension.

But on the following afternoon, the breast pains started again, and were much more intense, so, under ether anesthesia, two incisions were made in the outermost abscess and a third a little below the nipple, which released a considerable amount of pus, some of it having worked in a semicircle around and below the areola. The upper abscess was also incised, but very little pus could be found at the time. This infection was found to be of the diffuse interstitial type. The abscesses were syringed out with boric acid solution, gauze wicks were inserted, and a moist boric acid dressing was applied.

The patient was considerably relieved. The following day, however, she felt some pain in the left breast, on account of lactation, but the nurse massaged it, which relieved her greatly, and with massage and local applications of belladonna ointment and saline catharsis, the left breast was entirely relieved in a few days, and the milk was dried up, as I deemed it best to put the baby on the bottle, it being inadvisable for the mother to risk nursing the baby on the sound breast on account of her general physical condition, as well as the infection of the right breast.

Two days later two other small incisions had to be made under cocain, in order to facilitate the drainage, as there was a very large amount of pus

present, and the patient felt some soreness in the upper outer quadrant, so one of the incisions was made in a direct radius from the nipple, over the abscess in the upper outer quadrant, nearer the periphery, and that not only released some of the pus, but afforded free counter-drainage for the abscess on the outer side, as there was a deep sinus of communication through the interstitial areolar tissue between the two abscesses, which was clearly demonstrated on syringing out the sinuses with hydrogen dioxide, and boric acid solution, which, if injected into the outermost abscess, found a free exit at the incision in the upper outer quadrant. Every day the abscesses were syringed out with dioxide and boric acid solution, and dressed with gauze wicks and moist boric acid dressings, the amount of pus steadily decreased, and by the 25th, had entirely disappeared, and the wicks were omitted. The following day the upper sinus was filled in with clean, healthy granulation tissue, and the other sinuses were filling in. The two lowermost wounds were a little slow in healing, as compared with the other wounds, on account of the oozing of milk, but this was gradually stopped by dressing with dry powdered boric acid and alum and belladonna ointment was applied to the lower part of the breast. In the meantime the other sinuses were all filled in with healthy granulation tissue, and by July 7 the lowermost wounds were covered with clean dry scabs and the mother made an uneventful recovery.

On July 1, the patient caught a slight cold and complained of intense shooting pains across the affected breast, but these proved to be due to intercostal neuralgia, and no more signs of abscess appeared in the breast tissues. Within three days the pains were all gone, and after that, the patient had no more pains in her breast.

Dr. John T. Williams[1] reports a case of antepartum mastitis during the eighth month of pregnancy in a mother of five children. She had a painful, tender swelling in her left breast, which she had been rubbing with warm sweet oil, and also had fever and general malaise. She was treated with ice packs, bandaging and saline catharsis, but the lump grew larger and more brawny and painful, so in four days it was incised and the pus evacuated. Improvement immediately followed, with temperature falling to normal, but five days later the opposite breast became hard and painful, and the temperature rose to 102.5°. Under ice and salts this breast softened up rapidly, but in two days the left breast again became "caked," with a rise of temperature. Ice was again applied, which this time brought about a rapid subsidence. Within a month the patient was delivered, and on the fifth day the left breast again became inflamed, but quieted down rapidly under ice and saline catharsis and gave no more trouble since. She was nursing the baby on both breasts, although the amount of milk was somewhat scanty, so that supplementary feeding was required.

Fleck[2] reported a case of mastitis in a primipara, in the ninth month following a case of facial erysipelas, both breasts becoming red, swollen, and painful, an abscess developing in the right breast the first day after labor, which was opened, and the patient recovered, the left breast subsiding without operation.

Callman[3] reported a case of double mastitis during the sixth month of pregnancy following eczema and impetigo of the nipples. Fluctuation developed, first in the right breast, which was opened and pus evacuated, and fifteen days later in the left, which was also opened, but only a turbid fluid was obtained. Patient recovered and was delivered of a breech at full term by manual extraction.

Davis[4] reported the case of a primipara who developed a breast abscess after being accidentally scalded by hot coffee. This abscess was incised and pus obtained, from which a pure streptococcus culture was developed. She recovered and later passed through a normal labor.

In each of these last three cases, as well as in the first one, the child had to be fed by the bottle.

The general etiology of breast abscess has already been discussed. In the first case the underlying cause of the abscess was the old trauma, the parenchymatous tissues on the inner side of the breast having been bruised in the fall, and the cells, most severely injured, had never fully regained their normal healthy condition, but were in a state of lowered resistance. Then, as the patient was rather ill nourished, she may have had some pyogenic organisms in her blood, since she had the abscess in her finger, and, with her general bodily resistance lowered by her attack of whooping cough, it gave the pus organisms a most favorable chance to multiply and find an excellent breeding ground in the breast tissues, already weakened by the old trauma and engorged with an extra amount of blood preparatory to lactation, and in that way the abscess formed, in spite of all measures taken to prevent or abort it.

In Dr. Williams' case the infection in all likelihood entered through the nipple by way of the milk ducts, as no history of trauma could be obtained in this case, the hot applications and massage further enhancing the abscess formation.

In Fleck's case it is likely that the nipple may have been the port of entry although the blood stream cannot be ruled out, and it is very likely that, with such an infection as facial erysipelas, the blood would be filled with organisms which would find an excellent nest for infection in the engorged breast, especially where the general bodily resistance had been lowered by the previous disease.

In Callman's case it is most likely that infection took place through the nipples, since they were involved in the impetigo and eczema, but there was a possibility of the organisms travelling through the dense network of lymphatics rather than through the ducts. In Davis's case there was no visible solution of continuity at the site of the burn, and it is most likely in this case that the streptococcus was already present in the

milk ducts, and attacked the tissues when their resistance was lowered by the burn.

Unfortunately no cultures were taken, except in Davis's case, which showed pure streptococcus. Rubeska[5] has shown the staphylococcus aureus and albus as the most frequent cause of breast abscess, the streptococcus being relatively rare. Köstlin[6] found the staphylococcus albus on the nipple in each of 100 pregnant women. In 23 of these the staphylococcus aureus, 25 the streptococcus, 14 sarcinae, 3 staphylococcus citreus, and in 2 the micrococcus tetragenus were also present. He examined the fluid from the breast in each of these cases and found it to be sterile in 14%. In the other 86% the staphylococcus albus was present, and in 2% the staphylococcus aureus as well.

The fact that in 3 out of 5 cases trouble was present in the opposite breast, shows that breast engorgement is an aid in the formation of breast abscess during pregnancy.

Therefore, the occurrence of mastitis in pregnancy is as follows: In the majority of women organisms are present on the nipples and in the milk ducts in greater or less number, according to the patient's habits of cleanliness and care of the nipples, or else in some women they may be present in the blood stream, according to the patient's general physical condition. These organisms are ordinarily innocuous, especially in a good general condition of bodily resistance, but when engorgement occurs, conditions favorable to their growth are developed, and when the breast tissues have been injured before or during the pregnancy by trauma, and their resistance is thus further lowered or when more virulent organisms are present, the tissues are attacked and suppuration takes place.

The prophylaxis of breast abscess during pregnancy is the same as during lactation, *i.e.* scrupulous cleanliness of the nipples, and bathing with alcohol and boric acid solution, and the prompt treatment of any soreness or tenderness by ice packs, cold astringent compresses of lead and opium wash, firm bandaging and saline catharsis.

CONCLUSIONS.

1. Organisms are present on the nipples in 100% and in the milk ducts in 86% of all pregnant women.

2. When the tissues have been injured by trauma and their resistance lowered, or the breasts have become more engorged, or the organisms are of unusual virulence, they attack the tissues and produce inflammation.

3 The prophylaxis of breast abscess in pregnancy consists in:—

(*a*) Absolute cleanliness of the nipples, and avoidance of injury to the breasts.

(*b*) Prompt treatment of mastitis by bandaging, ice packs, cold astringent compresses, and saline catharsis.

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[3] Callman: Centralblatt für Gynäkologie, 1904, Vol. xxviii, pp. 1436-1438.
[4] Davis: Amer. Jour. Obstet., 1909, Vol. lix, pp. 1043-1048.
[5] Rubeska: Archiv für Gynäk., 1899, Vol. lviii, pp. 177-184.
[6] Köstlin: *Ibid.*, 1897, Vol. liii, pp. 201-277.

Reports of Societies.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Meeting of Wednesday, October 28, 1914, at 8.30 p. m.

The President, Dr. William Duffield Robinson, in the chair.

Dr. William S. Newcomet exhibited a case of sarcoma of the jaw treated with radium with entire disappearance of the mass.

ABDOMINAL PAIN: ITS SIGNIFICANCE AND DIAGNOSTIC VALUE.

Dr. John B. Deaver: Perhaps no better definition of pain has ever been given than the picturesque statement of Agnew, that, "Pain is the language of a suffering nerve." In order to diagnosticate disease we must be able to read the language. At least 90 per cent. of all diseases begin with pain or give rise to it at some time in their course. Ordinarily pain is the result of undue stimulation of nerve fibres by mechanical, chemical or thermal agents. Such pain is objective. There is a type of pain which has no external physical basis. It is a product of disordered mental action. This is subjective pain and is illustrated in the phenomena of hysteria. Such pain belongs to the domain of the neurologist. It is a confession of ignorance to give to pain a name which has no pathological significance. All the various "algias" should be replaced by terms conveying an understanding of the underlying processes. The surgeon has found the abdomen to be a veritable Pandora's box of troubles which, however, fly away when the box is opened. No more stimulating example of the discovery of the hidden cause of pain can be imagined than the recent demonstration of duodenal ulcer as the source of a frequent type of gastric pain. The first great obstacle to the appreciation of the significance of abdominal pain has been the belief that the majority of pain in this region was the result of disordered function. The so-called neuroses figured largely in abdominal diagnoses, but the surgical era has driven these into a very small field destined to be further circumscribed. The second great difficulty in abdominal diagnosis is the inability of the nervous system accurately to localize sensations received from visceral areas. For the understanding of peculiar manifestations of faulty pain localization we must be familiar with certain modes of nerve action. It is well to bear in mind that pain in the abdomen is *per se* no evidence that the lesion is in the abdomen. Abdominal pain associated with

pleurisy or pneumonia, particularly in children, is probably of a reflex nature. Angina may give rise to intense epigastric pain simulating acute surgical disease of the upper abdomen. It is necessary to be familiar with the various types and degrees of pain that disease of the organs of the upper abdomen may cause. It is in the milder forms and beginning of disease that the location of pain is of the greatest value. Of all the organs in the abdomen the stomach presents the greatest variety of symptoms and the most difficult to analyze. If general disease of the stomach is excluded, gastric symptoms should prompt a careful and systematic survey of the abdominal organs. Grossly insignificant chronic disease of the appendix may set up pylorospasm with pain, retention, fermentation and secondary gastritis. It is of the utmost importance to investigate by history and examination of the right iliac fossa, every case presenting epigastric symptoms commonly referred to the stomach. The diseased gall bladder frequently masquerades as a gastric affection. To make an impression upon students I often say, "Fair, fat and forty, belching gas—gallstones." While a trifle dogmatic, the diagnosis is remarkably often justified. Adhesions are of two types, congenital and acquired. Omental or other adhesions I do not hesitate to sever when found in unusual positions. More extensive operative work involving an interference with a poorly understood physiology and for other indications than obstructive symptoms is rash surgery. Nature is the most wonderful artist in the removal or adhesions. Obstructive symptoms in any case following operation or which is believed to have abdominal adhesions calls for immediate surgical operation. Adhesional pain should never be treated with narcotics. At least a year should elapse before operative relief of post-operative adhesions is advised, except in the case of serious symptoms. There is too much morphia used as a routine measure after abdominal operations. When pain makes its appearance on the second or third day or later following operation the conditions chiefly to be considered are simple distention, peritonitis and obstruction. The most important single feature in differentiation is the character of the pain, whether wave-like and intermittent, or steady and associated with tenderness. The pain of distention and obstruction is, as a rule, colicky and wave-like; that of peritonitis, more steady, diffuse and unremitting. I realize more and more the difficulty of attempting to classify and systematize abdominal pain in its relation to visceral lesions. There is a rough parallelism sufficient in most cases to warn us of the presence of a pathological process and which often gives us much information as to its nature. Often, however, we are obliged to rely upon experience and our knowledge of the probabilities.

DISCUSSION.

DR. JOHN B. MCALISTER, Harrisburg: Why should I impart to this audience how little I know about abdominal pain? Perhaps I can best speak on the subject by citing some cases. Not so long in the past I was called to see a lady suffering severe abdominal pain. I tried to follow the instructions of my teachers in making a careful and accurate diagnosis by placing my hand upon the various points, asking whether the pain were of such and such a character. Finally the patient replied rather testily, "No, it's not that kind of a pain; it's a damned bad pain; give me something to relieve it." While that may appear to be a rare character of pain,—one not mentioned in Dr. Tyson's text-book, and probably not mentioned by Dr. Deaver, in public at least, it is not really such a rare pain. When we are called to see a patient between midnight and morning it is pretty often that kind of a pain we have to deal with. We often go home not able to interpret the language of these pains and feel that the patient has pretty well described the pain in the abdomen. In spite of all our knowledge of anatomy and pathology in the abdomen, notwithstanding all our landmarks, exploratory operations for diagnostic purposes will be made. I know of no way of recognizing the referred abdominal pain occurring at the beginning of pneumonia except by careful diagnosis. Not long ago I was called to see a lady at a bridge whist party taken suddenly with severe pain which I felt sure was caused by kidney stone; the pain was as characteristic as that of any renal colic I have seen. Operation revealed a fibroid tumor with considerable colloid degeneration. The woman had been in apparently good health until that attack of pain. I could not account for the severe pain except that there may have been a twisted pedicle. Another pain in the upper abdomen which is of supreme importance is that of acute pancreatitis or hemorrhagic pancreatitis. It has been my sad fate to see four of these cases. In the first and second cases the diagnosis was made upon the autopsy table. In the third and fourth the diagnosis was confirmed upon the autopsy table. All were in adults and without history of previous ill-health. Acute sudden pain seems to me one of the greatest tragedies in abdominal conditions. I should be glad if in the discussion we may be instructed how we can more definitely from the character of the pain distinguish between gastric and duodenal ulcer and pancreatic disease.

DR. JOSEPH SAILER: As Dr. Deaver has suggested, the abdomen has almost ceased to be the domain of internal medicine. Pain is a subjective affair, something felt by the patient, which we cannot measure; and, while experience may give us a proper estimate of the patient's manifestation of pain, we may be deceived by those who exaggerate or underestimate its degree. I agree with Dr. Deaver that the use of the various "algias" should be discarded, and that with remarkable frequency, pain in the epigastrium means disease elsewhere. It is astonishing how often patients with valvular heart disease and with tuberculosis of the lungs, come to the physician complaining of gastric symptoms. Only by the most careful physical examination can we detect the true underlying lesion. Acute endocarditis in the early stages may so simulate abdominal conditions that operation may seem imperative. The amount of literature at the present time upon the subject of intestinal stasis with the extravagant claims made by some surgeons is appalling to the internist. The evidence, however, is purely superficial and upon such evidence, surgical treatment is unjustifiable.

DR. WILMER KRUSEN: I would emphasize the necessity of a bimanual examination in all cases of appendicitis to determine whether the appendicitis is coexistent with pelvic disease or whether all the symptoms are due to salpingitis. The pain of ectopic pregnancy is of such gravity that physicians should be mindful of its possibility in cases of ab-

dominal pain. Then to be considered are the pains associated with neoplasms. In fibroid tumors there is pain due to pressure conditions. In no condition of gynecology would pain be so beneficent as in malignancy. The surgeon would welcome the fact that a woman with beginning cancer had pain.

Dr. A. C. Morgan: It is very important that we differentiate between acute and chronic pain. In a large percentage of cases acute pain constitutes a surgical condition calling for prompt action for the saving of the patient's life. I have come to regard the term "dyspepsia" as a very dangerous one, because in the light of our present knowledge we know this condition is not present, but that the stomach is giving us warning of trouble elsewhere. The man who is content with the routine treatment of "dyspepsia" with nux vomica, etc., is careless or ignorant and is not a credit to the medical profession in 1914.

Dr. James Tyson: I was called yesterday to see a case of abdominal pain, paroxysmal in character and with history of traumatism. The attacks of pain were of slowly increasing severity resulting in collapse. The patient's abdomen was swollen and to my inquiry of the location of pain he replied that it was general. Passing my fingers in the region of the appendix I found evident tenderness, yet there was nothing that was distinctive any more than in the numerous cases of pain which have been described suggesting gastric ulcer or pancreatic disease or duodenal ulcer. I came here wishing to get some light, which illustrates the propriety of meetings like this. I have not yet made a diagnosis of this case and should be very glad if those who are here would help me out.

Dr. Damon B. Pfeiffer gave a lantern demonstration of some of the important points of Dr. Deaver's paper.

Dr. S. Solis Cohen: I would like to reiterate the plea of Dr. Deaver that we do not attempt to hide our ignorance by the use of the various "algias." I would not eliminate functional disturbance of the viscus from among those conditions giving rise to pain in the abdomen. That too often organic disease is overlooked from want of careful examination is true, but when careful study has been made, and the evidence points to the so-called functional disturbance, then the physician is justified in carrying out medical measures. Several times in my experience I have been unable to exclude appendicitis, gall stones or gastric ulcer without exploratory operation. A better understanding of the great sympathetic nervous system would give us more light upon such cases. Just as this system gives rise to reflexes such as pylorospasm, so it gives rise to pain referred to the same areas to which it would be referred without the viscus disease. The disease, however, is not in the viscus, but in the nervous system supplying it. There is such a thing as hysteria, but 99 cases out of 100 called hysteria are something else. In such cases I would advise exploratory operation. I want to thank Dr. Deaver for his reference to the comparative frequency with which acute pancreatitis expresses itself in epigastric pain. I have known cases in which death occurred prematurely because the significance of the pain was not realized. To make a diagnosis one must not study pain or any other symptom alone, but must study thoroughly his patient.

Book Reviews.

Diseases of the Rectum and Colon, and Their Surgical Treatment. By Jerome M. Lynch, M.D., Professor of Rectal and Intestinal Surgery, New York Polyclinic; Attending Surgeon, Cornell Dispensary; Attending Proctologist, St. Mary's Hospital, Hobooken, N. J.; Attending Surgeon, Red Cross Hospital, New York; etc. Illustrated with 228 engravings and 9 colored plates. Philadelphia and New York. Lea and Febiger. 1914.

This is an excellently illustrated book of six hundred pages; most of the pictures being new. In his preface, Dr. Lynch explains that the "present work is not intended to be an encyclopedia, or a book for the specialist, nor for the student, but is addressed to practitioners who have not yet attained well-rounded experience in rectal and colonic surgery." The subjects are discussed in full detail and the book includes the preparation of the patient, after-treatment and complications. Dr. Maxwell-Telling has written a chapter on Diverticula, Dr. G. Reese Satterlee on Vaccines, Dr. A. Judson Quimby on X-ray. On the first page Dr. Lynch deplores the neglect of adequate instruction upon rectal diseases which characterizes the American Medical School. He says there are but two undergraduate schools in the United States "which have on their teaching staff a man experienced in rectal diseases, and not a single medical college has a recognized specialist as a professor of proctology." This is a surprising statement and goes far to explain the ignorance upon such matters which Dr. Lynch has so frequently encountered. The only noticeable omission which we have discovered in the book is that of a chapter upon anatomy. Embryology and malformations are considered and in various places there are excellent plates showing blood supply and nerve supply, etc. But a single cohesive chapter on anatomy is lacking. Since the book is addressed to general practitioners and students, this will, we trust, be added in the second edition. Advice as to treatment, particularly as to thoroughness of examinations, description of operative methods, illustrations, pathological conditions, are all extremely good. We notice that Dr. Lynch recommends incision as the only operative treatment of fissure; he says that divulsion should have no place. He gives adequate description of the various major operations for cancer of the rectum and finishes the book with chapters upon x-ray in which the plates are obviously untouched. Within the limitations which the author has outlined for himself, the book may be cordially recommended.

Qualitative Chemical Analysis. A Laboratory Manual of Qualitative Chemical Analysis. By

A. R. BLISS, JR., M.D., Ph.G., Professor of Chemistry and Pharmacy in the Birmingham Medical College. Octavo of 244 pages, with working tables. Philadelphia and London. W. B. Saunders Company. 1914.

The above work differs but little from dozens of others which deal with qualitative analysis. The advantage of putting instructions for such analyses in a volume by themselves is unquestioned, but the short sharp staccato commands to the student, much like the orders to a company of soldiers, divided by numerals running to 622, make the text very jerky and have no special advantage. We are told to write so that he who runs may read, but minute division of the text does not aid the reader unless used as in newspaper headlines. Every step in the analysis is stated with the most absolute clearness, additional or rather unprinted pages are offered for the notes of the students and at the close of a process, under comments, reasons for each step are clearly given. One wonders often whether it would not be better to instruct the student to put substances and definite reagents together and then give his own impressions of what takes place rather than to be told what should occur, much as in the problems in algebra, of which only the teacher is supposed to hold the key. At the close of the description of the reactions of each metal or acid, or as the newer chemistry prefers to call them, cations and anions, there is an enumeration of the pharmacopeial preparations in which they occur with no description, which is about as valuable as the list of ships that came to Troy for memorizing and equally as useful. The most emphatic impression produced on the mind is, that a host of unused and probably useless articles are still carried in that honorable but antiquated volume. The press work and binding are up to the standard set by the publishers, equalled by few and surpassed by none.

The Practitioner's Visiting List. 1915. Thirty Patients per Week. Philadelphia and New York: Lea and Febiger. 1914.

This visiting list appears in similar form to its predecessors. It contains upwards of thirty pages of significant and important medical facts and particularly of those which have to do with emergencies and are apt to escape the physician's mind. The visiting list is certainly also to be recommended as a ready means of keeping account of daily work.

The Medical Record Visiting List or Physician's Diary for 1915. Newly revised. New York: William Wood and Company.

This visiting list appears in its usual attractive form and binding of flexible leather. Its capacity is sixty patients a week, which should be sufficient for a practitioner in active practice. As heretofore, about thirty pages are taken up with lists of doses, antidotes for poisoning, and similar facts of practical interest to the physician. We recommend this visiting list as we have its predecessors.

The Intensive Treatment of Syphilis and Locomotor Ataxia by Aachen Methods. By REGINALD HAYES, M.R.C.S., pp. 63. London: Baillière, Tindall and Cox. 1914.

This small book of sixty-three pages is devoted to an elaboration of treatment by mercurial inunction. By Aaachen methods the writer means inunction of mercurial ointment by the bare hand of skilled rubbers, together with the use of sulphur water as administered at Aachen. The book is a strong plea for the use of mercury, particularly as given by this means. It should be of particular interest at this time of possible overenthusiasm for salvarsan.

The Salvarsan Treatment of Syphilis in Private Practice. By GEORGE STOPFORD-TAYLOR, M.D., and ROBERT WILLIAM MACKENNA, M.D. pp. 90. New York: Rebman Company. 1912.

The authors have placed on record the results of three years' use of salvarsan in private practice. The book, therefore, has value as a statement of personal experience. In addition to this it reviews in brief fashion our knowledge of the general subject since the discovery of the causal spirochete of syphilis. In general, the experience of these observers has been that of others, namely, the very great benefit which Ehrlich's discovery has proved in the treatment of this devastating disease. A series of photographs are introduced at the end of the book, illustrating various syphilitic lesions.

Abdominal Operations. Volume I and Volume II. By SIR BERKELEY MOYNIHAN, M.S. (London), F.R.C.S., Leeds, England. Third edition, revised, fully illustrated. Philadelphia and London. W. B. Saunders Company. 1914.

In the preface of this third edition Mr. Moynihan says that the second edition having been long out of print "considerable revision has been necessary and certain chapters have been rewritten." He has described in detail only methods which he himself uses. To those not familiar with the book, it is necessary to say that the title is a trifle misleading. The two handsome volumes, beautifully illustrated in addition to being admirably printed, do not contain descriptions of gynecological operations, operations on the kidney or bladder, nor operations for hernia. Within these limitations, the book

is of great interest; it is complete and thorough, and is very generous in its acknowledgments of contributions made by American surgeons on operative and abdominal surgery. Among other things, we find Monk's work on the mesenteric circulation and intestinal localization reproduced with most of the pictures and much of the text. No reference is made to mechanical appliances, buttons, bobbins, or other aids to intestinal suture. The author states that he believes these have served their term "and that their interest is now only historical." It is to be regretted that Mr. Moynihan has not included operations on the genito-urinary system; for whatever may be the feeling of the specialist in the work, it will continue to be done in large part by the general surgeon. On page 39, under the head of "Preparation of the Patient," Mr. Moynihan states that—"It is supremely important that the skin should not be roughened or chapped and that no irritative rash should be caused. Over-preparation to the extent of damaging the skin is almost as bad as no preparation at all." If we read the two preceding paragraphs, we will be driven to believe that such skin preparations as he apparently uses as routine would roughen and irritate the abdomen of many American patients. No allusion is made to the iodine preparation. Mr. Moynihan's ability as an operator is too well known to need comment. In this book, as well as in other volumes, we find his own personal views stated without either arguments to prove their validity, nor criticisms of others who would differ from him. It is his personal contribution to the art of operations on the abdomen.

Manual of Surgery. For Students and Practitioners. Ninth edition. Revised by Albert Carless, M.B., M.S., Lond., F.R.C.S., Professor of Surgery in, and Surgeon to, King's College Hospital, London; formerly Examiner in Surgery to the University of London, Glasgow, Manchester, Liverpool, and Leeds. New York: William Wood and Company. 1914.

The first edition of this Manual of Surgery appeared in 1898, and at present the ninth edition is published. Besides these, it has been translated into Hungarian, Chinese, and Arabian. Further testimony as to the popularity of the book is superfluous. Mr. Carless says that "The triennium which has elapsed since the issue of the eighth edition of this manual has been characterized, not by the discovery of any revolutionary or wonder-working novelty, but by the steady elaboration of ideas and methods which had already been introduced, and require time for their investigation. Salvarsan and radium in particular may be mentioned as subjects to the consideration of which a vast amount of work has been devoted." Mr. Carless mentions also the progress of research and treatment by heat, light, electricity, etc., for which a new chapter has been provided. It is most satisfactory to learn that although new illustrations and plates have been added, there are the same number of pages in this as in previous editions, and that owing to the use of thinner paper the weight of the volume has actually decreased. Paper, printing, and illustrations are excellent. The book includes a chapter on "Affections of the Nose and Naso-Pharynx," and another "Affections of the Ear," leaving, therefore, as a strict specialty omitted from this volume only "Affections of the Eye." We note in the treatment of compound fractures recommendations to drain, as a rule. American surgeons probably do not approve of drainage for compound fractures, except in occasional cases. In fractures of the patella Mr. Carless does not mention suturing; in operative treatment he recommends the use of silver wire, which in this country at least is believed to be undesirable. The book is a most excellent manual. It is unusually complete and it continues to hold the very highest rank among English textbooks in surgery.

Quain's Elements of Anatomy. Eleventh edition. Edited by Sir Edward Albert Schäfer, LL.D., Sc.D., M.D., F.R.S.; Johnson Symington, M.D., F.R.S., and Thomas Hastie Bryce, M.A., M.D. In four volumes, Vol. II, Part II. Splanchnology. By J. Symington. With 349 illustrations. London: Longmans, Green and Company. 1914.

This latest volume of the latest edition of Quain's Anatomy, by Symington of Belfast, deals with the topographical anatomy and morphology of the digestive, respiratory, and genito-urinary systems, and of the ductless glands. The original text has been revised and rewritten, and many excellent new illustrations have been added. The chapter on the peritoneum is by Mr. P. T. Crymble. In its new form, this old Scottish anatomy retains its individuality, and adds other merits to those which first made it one of a few authoritative standards among English-speaking students and anatomists.

Medical Jurisprudence. A Statement of the Law of Forensic Medicine. By Elmer D. Brothers, B.S., LL.B. St. Louis: C. V. Mosby Company. 1914.

This volume is based on the author's lectures of the past twenty years. Though intended for medical students, it would seem to be of more interest to students of law, since it is concerned rather with medical aspects of the law than with legal aspects of medicine. Nevertheless, its study should be of value to physicians giving expert testimony or otherwise engaged in medico-legal work.

York: William Wood and Coompany. 1914.

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HEALTH CONDITIONS AMONG RURAL SCHOOL CHILDREN.

THE results of joint investigation by committees of the National Council of Education and the American Medical Association show that physical defects are much more common among country school children than those of the cities. Curvature of the spine, tuberculosis, ear troubles, defects of vision, enlarged tonsils and adenoids, were all more than three times as prevalent in the rural as in the city children. (*Monthly Bulletin,* New York State Department of Health, September-October, 1914.)

As these defects are practically all preventable, the obvious inference would be that the low standard in the country schools is largely due to lack of medical inspection and supervision. That such inspection is very badly needed is evidenced by the report of Dr. Charles L. Bailey of the United States Public Health Service, concerning the health conditions of the rural schools of East Tennessee and Northern Georgia. (*United States Public Health Report,* December 4, 1914.)

In these rural schools there is practically no sanitary supervision of the buildings and no medical inspection of the children. Disease and physical defects, such as dental caries, adenoids, enlarged tonsils and cervical glands, errors of refraction, defective hearing, trachoma, malnutrition, and heart disease, were prevalent conditions.

Lack of air space and a chance to exercise in the open were never factors in causing any of the above conditions, for the area of the yards of the country schools investigated, ranged from a third of an acre to five acres. While many of these playgrounds were well graded and clean, others were more or less covered with rubbish. In some of them the shade from the trees was sufficiently great to interfere with the admission of a proper amount of sunshine. In very few yards were there paved, wooden, or gravel paths from the road to the school, so that a great deal of mud was carried in on the children's feet, and in some the privies were situated on higher grounds than the wells, the surface drainage flowing directly towards the latter. The condition of the privies themselves was almost universally bad. Practically all of them were without vaults of any kind, and were open at the back, thus permitting the free entry of animals and flies. The buildings were often filthy, the seats and floors being soaked with urine and excreta so that the odor was unbearable. Only one school out of 183 visited was equipped with a septic tank privy. Many schools were without toilet facilities of any kind, thus compelling the use of secluded spots in the near-by fields and woods, and making the infection of the soil with intestinal parasites an absolute certainty.

Wells and springs were the source of the drinking water. The springs were not protected from surface drainage or fenced in to prevent their use by cattle, and the wells did not have adequate covering or troughs to carry off the refuse water, which consequently drained back into the well. The method of drinking the water was not quite so universally unsanitary as the source itself, because a little more than one-half of the schools visited had discarded the common drinking cup or dipper. Some advance had also been made in the subject of lighting, as many of the newer schoolhouses had the windows placed on one side only, usually to the left of the pupils, thereby avoiding bad cross lights and simplifying the proper placing of blackboards. In the old schoolhouses the illumination was not so good. Many of these were so arranged that the pupils were compelled to sit facing the light, thus increasing the danger of contracting eyestrain.

The majority of the schools were heated with wood or coal stoves, the area immediately around the stove being very hot, while the rest of the room was cold. There is on the market

a jacketed stove with a flue drawing fresh air from the outside of the building into the jacket, where it is warmed, and escapes at the top, thus maintaining a practically uniform temperature in all parts of the room. Though this stove is efficient and inexpensive, not one was seen in use.

Very few schools were over-crowded but many were over-heated and poorly ventilated. Only four of 164 schoolhouses heated by coal stoves attempted to supply the moisture so necessary for health and comfort, by the simple expedient of placing vessels of standing water on the stoves.

Provisions for washing faces and hands were seldom made, and where there was an attempt in this direction, the common towel was almost always the method provided for drying. Not one school was equipped with adjustable seats, and many pupils were using desks entirely too large for them. A great many schoolhouses were swept at recess, with doors and windows closed, and often with the children partaking of their lunch while the sweeping was going on.

The foregoing array of conditions in the rural schools of Tennessee and Georgia is certainly a sad commentary on the advance of hygienic knowledge in the country districts of those states. When we consider the fact that in the year 1910 the census reports for the state of Tennessee showed that 600,000 of its 734,478 children of school age were living in the country districts, these bad sanitary conditions become a matter of graver concern than is at first apparent. Surely the medical supervision and inspection of school children is needed in the country fully as much as in the town. In the whole matter of the public school question we Americans are too apt to believe our politician orators when they tell us that in our free country we have the finest school system in the world. In this connection the article of Price Collier in November *Scribner's* is illuminating. Speaking of Norway and their school system, he says, "Every child must appear before both dentist and physician and must submit to being kept in as healthy a condition as possible. This sound and sensible schooling, with the dentist and physician at the entrance gates, with bathing and gymnastics to follow, and with sewing, cooking and handicrafts, is compulsory upon all pupils in Norway and Sweden."

If one desires to see some of the far-reaching practical results of such a system he should compare the longevity statistics of countries like Norway and Sweden with those of other countries, where less attention is paid to the health of the young generation. It will be found that such measures are among those which have added ten years to the average life of the Norwegian as compared to that of our own people.

LIFE INSURANCE AND ALCOHOL.

At the recent annual meeting of the Association of Life Insurance Companies in New York a report of much interest from a bureau of investigation was presented by Mr. Arthur Hunter, chairman of the bureau. This report embodied the results of careful investigation, just completed, into the causes of premature deaths, during the last twenty-five years, among the 2,000,000 policy holders of forty-three leading life insurance companies; its special object being to enable the companies to arrive at a better estimate as to which classes of applicants can be insured at regular rates, which should be required to pay extra premiums, and which should be refused. Naturally, alcohol is a very prominent cause of mortality, and the report states that among the persons who admitted that they had occasionally drunk to excess in the past, but whose habits were considered satisfactory when they were insured, there were 289 deaths; while had this group been made up of insured lives in general, it was computed that there would have been only 190 deaths. The excess mortality was, therefore, over 50%, equivalent to a reduction of over four years in the average lives of these men. Among the fourteen subdivisions of those engaged in trades connected with the manufacture or sale of alcohol it was found that there was only one class in which there was a normal mortality, and that was the distillery proprietors. Among saloon proprietors, whether they personally attended the bar or not, there was an extra mortality of 70%, and the recorded causes of death indicated that a free use of alcoholic beverages had caused many of the deaths. Hotel proprietors who attended the bar either occasionally or regularly had as high a mortality rate as the saloon keepers; life being reduced about six years, on the average, on account of their occupation. As an illustration of the good results which would ensue from ab-

stention from alcohol the report refers to the enormous saving of human life that will be accomplished if the Russian government establishes permanent prohibition. The loss of 500,000 men as the result of the present war, it is stated, could be made good in less than ten years through complete abstinence from alcoholic beverages by all the inhabitants of Russia.

AID FOR BELGIAN PHYSICIANS.

IN another column of this issue we present in detail an appeal for aid for Belgian physicians and surgeons. At such a crisis as this the suffering and privation in devastated Belgium is general, but the position of the physicians should peculiarly arouse our sympathy and stimulate our efforts to help their desperate situation. As appears from Professor Jacob's statement, the physicians have lost, not only their houses, but also the very instruments and other necessities with which to carry on their work. For the benefit of the destitute people, as well as for the physicians themselves, assistance is most urgently demanded, in order that the practice of the physicians remaining may be facilitated in every possible way. We need only to call attention to these facts to excite, we trust, a generous response to the appeal which Sir Rickman Godlee has addressed to certain surgeons of the United States and which has resulted in the appointment of a committee to collect funds for the specific relief of Belgian physicians. Dr. Frank F. Simpson, 7048 Jenkins Arcade Building, Pittsburgh, Penn., has consented to act as treasurer of the committee, and will gladly receive contributions, either personally, or indirectly, if sent to the editor of the *Journal of the American Medical Association, The Medical Record, Surgery, Gynecology and Obstetrics,* or the *Boston Medical and Surgical Journal,* respectively.

MEDICAL NOTES.

AMERICAN SANATORIUM ASSOCIATION.—The annual meeting of the American Sanatorium Association, held at Middleborough, Mass., on Dec. 15, was attended by delegates from all parts of the United States and Canada. Papers were read by Dr. Lawrason Brown of Saranac Lake, N. Y., Dr. George W. Beach of Walker, Minn., and Dr. Sumner Coolidge of Lakeville. Dr. V. Y. Bowditch of Boston presided. Resolutions were adopted urging the Massachusetts General Court to authorize some commission to detain tuberculous patients at state institutions as long as there is danger of their infecting others with their disease.

LONDON DEATH-RATES IN OCTOBER.—Statistics recently published show that the total death-rate of London in October was only 14.1 per 1000 inhabitants living. Among the several districts and boroughs, the highest rate was 21 in Southwark, a populous southern slum, and the lowest was 9.3 in Stoke Newington, a more open region on the north.

TUBERCULOSIS IN GERMANY DURING THE WAR.—State care of the tuberculous in Germany has not ceased on account of the European war. "At the outbreak of the war Germany had 149 sanatoriums for adults and 32 for children. There were also 108 hospitals, containing 20,000 beds, for weak and scrofulous children. In addition, there were 1819 dispensaries and 115 forest homes (*Walderholungsanstalten*), and 19 large institutions, with 1496 beds, for cases of tuberculosis of the bones and joints. Further, there were several institutions for the treatment of lupus. When the war broke out most of the physicians and nurses attached to these hospitals volunteered for active service, and the hospitals being temporarily closed were put at the service of the army medical staff. The risks entailed by this precipitate abandonment of work among the tuberculous were, however, soon realized."

EUROPEAN WAR NOTES.—On Dec. 21 the total of the New England Belgian Relief fund amounted to $143,523.72, the Massachusetts Red Cross fund to $90,263.22, the Russian relief fund to $7,829.50, the Polish relief fund to $5,700.71, the New England British Relief fund to $14,101.52, and the Boston branch of the American Ambulance Hospital fund to $46,017.95.

In a recent issue of the *British Medical Journal,* Sir William J. Collins records some of his surgical experiences in a tour of military hospital inspection in West Flanders. At Furnes he visited a field hospital established in a convent. "This is the nearest hospital to the fighting line. We could hear the guns and at night see them flashing in the distance from its windows. More than once it has been under shell fire. Yet here in two wards are some seventy beds fully occupied by well-tended wounded Belgians, with an occasional German. Here is a good improvised operating theatre, and here excellent conservative surgery is being carried on under many difficulties. Plated fractures of humerus and femur, resection of intestine, suture of intestinal bullet wounds, extraction of shrapnel, balls and bullets, amputations and trephinings had been carried out with excellent results. Here, as elsewhere, nearly all wounds are septic from the first; suppuration is the rule.

One is reminded of Hueter's saying of old time that 'suppuration is an epidemic spread over the whole world.' Any attempt to isolate the aseptic from the foul is out of the question.

"Outside in the courtyard of the chapel are parked up a fleet of Red Cross motor ambulances awaiting the next call to the front. They are mostly converted cars, and they leave something to be desired. The heavy roads need at least 20 h.p. chassis, and many of them are of only 15. They are mostly arranged for two stretcher cases on the left-hand side and three or four sitting cases on the right. This causes a list to the right, intensified on highly cambered roads, especially when passing commissariat convoys or ammunition trains. On the Continent, of course, the rule of the road is to the right instead of to the left, and in converted cars the projection of the stretcher side of the ambulance to the left of the driver obscures the latter's vision of any vehicle overtaking him on the road."

Later, speaking of conditions at Dunkirk, Sir William says:—

"Most nights, between 10 and 12 o'clock, a gruesome scene was to be witnessed in the sheds at the station. The ambulance train (of the cattle truck variety) brought in the wounded from the front. A sort of clearing hospital had been improvised in one of the huge station sheds. Some 200 beds had recently been installed. To these the stretcher cases from the train were borne. Many of them had not been dressed for two or more days, and were intensely septic. Cases of gas gangrene, of severe compound fracture needing immediate amputation, huge black lacerated wounds from shrapnel or shell casing, some few clean bullet wounds, bad head injuries, and a traumatic aneurysm were among the 125 grave cases evacuated from the train in one night."

Reduced Cost of American Radium Production.—In his recent annual report, submitted at Washington on Dec. 14, Joseph A. Holmes, director of the United States Bureau of Mines, states that an improved process has been devised for the extraction of radium from ores on a large scale.

"Through this process," says Dr. Holmes, "it is possible that the cost of radium to the consumer will be reduced to one-third of the present price. The process is to be patented and dedicated to the public."

"With radium now selling at $120,000 a gram its reduction in price to $40,000 will result in many hospitals throughout the country being able to purchase a supply. The process devised by the bureau's chemists has been already tested with success in the plant of the National Radium Institute, which is under the supervision of the mechanical staff of the Bureau of Mines."

American Association for the Advancement of Science.—The sixty-sixth annual meeting of the American Association for the Advancement of Science will be held at Philadelphia from Dec. 28 to Jan 2, under the presidency of Dr. Charles W. Eliot. It is expected that over 1500 delegates will be present. The retiring president Dr. Edmund B. Wilson, will deliver an address on "Some Aspects of Progress in Modern Zoölogy."

"At the same time more than a score of affiliated organizations will hold their annual conventions. Among these are the American Society of Bacteriologists, Entomological Society of America, American Association of Economic Entomologists, Botanical Society of America, American Phytopathological Association, American Psychological Association, American Society of Naturalists, American Microscopical Society, American Physical Society, Geological Society of America, Paleontological Society of America and American Folklore Society."

The Epizoötic of Foot and Mouth Disease.—In his recent annual report, submitted at Washington on Dec. 10, Secretary Houston of the United States Department of Agriculture requests an additional emergency appropriation of several million dollars on account of the recent epizoötic of foot and mouth disease.

"The department has pursued its former policy of purchasing diseased and exposed cattle at an appraised value and of slaughtering them and burying them. It has established a very strict quarantine. The expense will be very great and it will be necessary to ask Congress for an emergency appropriation of several millions. The interests at stake are vast and justify any reasonable expenditure."

On Dec. 14, the federal quarantine in Iowa was raised, except in the following counties:

"Benton, Blackhawk, Buchanan, Cedar, Clinton, Delaware, Dubuque, Greene, Iowa, Jackson, Johnson, Jones, Keokuk, Linn, Louisa, Mitchell, Muscatine, Poweshiek, Scott, Tama and Washington.

"From the following-named counties live stock may be shipped for immediate slaughter at points where federal meat inspection is maintained:

"Benton, Blackhawk, Buchanan, Delaware, Dubuque, Keokuk, Linn, Louisa, Muscatine, Poweshiek, Scott, Tama and Washington.

"In addition, after previous inspection and certifications by federal inspectors, live stock may be shipped out for immediate slaughter from the following-named counties:

"Greene, Mitchell, Cedar, Iowa, Jones, Johnson and Clinton, except from territory within five miles of infection premises. Jackson County remains in absolute quarantine."

In Massachusetts, it is believed that the epizoötic is at an end. All infected animals have been slaughtered.

"The estimated value of the animals killed is $106,820.75, and the incidental expense of dis-

infecting premises, etc., will probably amount to $50,000 more. One-half of the total expense will be borne by the federal government.

"Forty-eight herds were killed and buried. There were 1099 cattle, 2 oxen, 2360 swine, 1683 fowl, 4 turkeys, 9 sheep and 4 goats."

MEDICO-HISTORICAL LOAN EXHIBIT.—At the Jefferson Memorial Building, St. Louis, there has been on exhibition since Dec. 4 a most interesting collection of rare and valuable books in Latin, dating from the fifteenth and sixteenth centuries, as well as paintings, engravings, medals and autograph letters. Contributors outside of St. Louis are Dr. Edward C. Streeter, of Boston, Army Medical Museum and Library, Washington, D. C., Rush Medical College, University of Pennsylvania Medical School, and John Crerar Library (Nicholas Senn Collection), Chicago. The exhibit covers a wide range of the history of medicine and graphically illustrates the interest manifested today in this important subject. The exhibit will close Dec. 24.

BOSTON AND NEW ENGLAND.

A PHYSICIAN ON THE BOSTON SCHOOL COMMITTEE.—At the municipal election on Dec. 15, Dr. Frederick L. Bogan of Charlestown, Mass., was elected a member of the Boston School Committee. Dr. Bogan received the degree of M.D. from the Tufts Medical School in 1905, and is a Fellow of the Massachusetts Medical Society.

DIPHTHERIA AND SCARLET-FEVER IN MALDEN.—Report from Malden, Mass., on Dec. 16 states that, on account of the continued prevalence of diphtheria and scarlet-fever in the Prince school district of that city, this school has for the second time been ordered closed until Jan. 4.

POLIOMYELITIS IN MARLBOROUGH.—Report from Marlborough, Mass., states that on Dec. 9 a case of poliomyelitis was discovered in that city. The house where it occurred has been quarantined.

DIPHTHERIA IN QUINCY.—Report from Quincy, Mass., on Dec. 10 states that, on account of the recent occurrence of several cases of diphtheria in the city, two of the local schools have been ordered closed and fumigated.

INVESTIGATION OF POLIOMYELITIS IN VERMONT.—Report from Burlington, Vt., on Dec. 11 states that arrangements have been made for a comprehensive study of poliomyelitis in Vermont by the State Board of Health in coöperation with Dr. Simon Flexner of New York and Dr. Robert W. Lovett of Boston. "Dr. Flexner is to send his assistant, Dr. H. L. Amoss, to aid in the experimental work to be conducted at the University of Vermont for the purpose of learning to what extent 'carriers' spread the disease. The treatment of children left cripples by infantile paralysis will be under the general direction of Dr. Lovett, assisted by some Vermont physician to be appointed later."

A CLERICAL CENTENARIAN.—The Reverend Sedgwick W. Bidwell, who died at Middlebury, Vt., on Dec. 13, is said to have been the oldest clergyman in the United States. He is reputed to have been born on Dec. 6, 1809, and continued active in the ministry until the age of 100.

A LIVING CENTENARIAN.—Mrs. Polly Johnson, of Somerville, Mass., who is said to have been born on Dec. 16, 1810, at Malone, N. Y., celebrated recently her supposed 104th anniversary. Her health is excellent, and she can still read without the aid of glasses.

FREE PUBLIC LECTURES ON MEDICAL SUBJECTS.—In accordance with its recent annual custom, the Faculty of Medicine of Harvard University offers a course of free public lectures, to be given at the Medical School, Longwood Avenue, Boston, on Sunday afternoons, beginning Jan. 3 and ending May 9, 1915. The lectures will begin at four o'clock and the doors will be closed at five minutes past the hour. No tickets are required. The following is the schedule of lectures:—

Jan. 3. Dr. Reid Hunt, "Drugs."
Jan. 10. Dr. John Lovett Morse, "The Care and Training of Older Children."
Jan. 17. Dr. J. L. Goodale, "Susceptibility and Resistance in Diseases of the Nose and Throat."
Jan. 24. Dr. Alexander Quackenboss, "Cataract; Its Nature and Treatment."
Jan. 31. Dr. William P. Graves, "Heredity."
Feb. 7. Dr. S. A. Hopkins, "Mouth Hygiene as a Factor in Sickness and Health."
Feb. 14. Dr. Harris P. Mosher, "Catarrh."
Feb. 21. Dr. George S. Derby, "The Preservation of the Eyesight."
Feb. 28. Dr. Franklin W. White, "Food in Health and Disease. 'Food Fads,' 'Health Foods,' 'Vegetarianism.'"
March 7. Dr. E. G. Martin, "Fatigue and Rest."
March 14. Dr F. S. Newell, "Modern Obstetrics." (To women only.)
March 21. Dr. G. S. C. Badger, "Common Colds."
March 28. Dr. Percy Brown, "The Use of X-rays as an Aid to Our Knowledge of Disease in the Stomach and Bowels."
April 4. Dr. R. B. Osgood, "The Cause and Prevention of Chronic Rheumatism."
April 11. Dr. C. A. Porter, "What Surgery Can Do for Chronic Indigestion."
April 18. Dr. Paul Thorndike, "The Bladder Ailments of Man in Later Life." (To men only.)
April 25. Dr. E. H. Place, "What May We Do in Diminishing the Dangers of Contagious Disease?"
May 2. Dr. E. E. Southard, "Sex Differences in the Human Brain."
May 9. Dr. W. B. Lancaster, "Lighting. Good and Bad Lighting; Its Effects on the Eyesight."

UNION DENTAL MEETING.—On the evening of Dec. 16 there was held in Boston a union dental meeting of the American Academy of Dental Science, the Harvard Odontological Society, Tufts Dental Alumni Association and the Metropolitan District of the Massachusetts Dental Association. Dr. Waldo E. Boardman, of Bos-

ton, presided and there was an attendance of 230 members and delegates. The guest of honor was Dr. John P. Buckley, professor in the University of Chicago Dental School, who made an address on "The Treatment of Hypersensitive Dentine and Other Diseases of the Dental Pulp." This is the seventh union meeting which these organizations have held.

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending Dec. 15, 1914: Diphtheria, 97, of which 8 were non-residents; scarlatina, 65, of which 5 were non-residents; typhoid fever, 11, of which 4 were non-residents; measles, 86; tuberculosis, 46, of which 2 were non-residents. The death-rate of the reported deaths for the week was 19.79.

NEW YORK.

MORTALITY STATISTICS.—The weekly reports of the health department show that during the month of November the mortality in the city represented an annual death-rate of 12.15, as against 11.14 in October and 12.36 in November, 1913. Among the diseases in which there was an augmented fatality were the following: The weekly average of deaths from measles increased from 1.5 in October to 2.25 in November; the weekly average from scarlet fever, from 1.75 to 2.75; from diphtheria and croup, from 18 to 21; from tuberculous meningitis, from 8.75 to 10; from pulmonary tuberculosis, from 140.5 to 159.5; from acute bronchitis, from 8.25 to 13.25; from pneumonia, from 55.75 to 87.5; from bronchopneumonia, from 45.5 to 69.25; from apoplexy and softening of the brain, from 21.5 to 26.5; from organic heart diseases, from 164.75 to 191; from appendicitis and typhlitis, from 10.75 to 12.5; from cirrhosis of the liver, from 14 to 17; and from Bright's disease and acute nephritis, from 81.5 to 106.25. Among the diseases in which there was a diminished mortality were the following: The weekly average of deaths from typhoid fever declined from 9 to 8; from whooping-cough, from 6 to 3.25; from epidemic cerebrospinal meningitis, from 4.25 to 3.5; from diarrheal diseases under five years, from 79 to 35.75; and from hernia and intestinal obstruction, from 11 to 9. Usually the death-rate is lower in November than in October, but, while the showing for November is very favorable, the rate was exceptionally low in October this year—being much under the average.

DISINFECTION OF PREMISES BY FUMIGATION.—Early in the autumn the health department decided to discontinue fumigation of premises after all cases of infectious disease, with the exception of smallpox, in the boroughs of the Bronx, Richmond and Queens. District nurses were instructed, on termination of any case by recovery, removal or death, to visit the premises and give all necessary directions regarding cleansing and disinfection by the occupants or by the owner in cases where the premises were vacant. In case of refusal, formal notice to be issued and enforced by the department. The nurses were also instructed not to remove the departmental placards from the door until satisfied that the necessary cleaning and disinfection had been carried out; nearly all authorities agreeing that such renovation, comprising repapering or repainting of walls, repainting of woodwork, and thorough cleaning of the floors, constitutes the most efficient means of disinfection of an apartment. The results are reported to have been most satisfactory, and, encouraged by these, the department determined to limit still further the disinfection of premises by fumigation during the coming year. Consequently, the budget for the Bureau of Infectious Diseases for 1915 dispenses with the services of one disinfector at $1050 per annum, sixteen disinfectors at $900, and seven at $750. In the coming year it is purposed to discontinue routine fumigation for infectious diseases in the borough of Manhattan, as well as in the Bronx, Richmond and Queens; so that a comparison of the 1915 morbidity rates in the borough of Brooklyn with those of former years will enable the department to determine whether any rise or fall in the morbidity in the other boroughs is due to discontinuance of fumigation, or would have occurred under any circumstances.

GREATER SUPERVISION OF STABLES.—The health department has for some time appreciated the need for a greater supervision of stables in the city, with a view to improving their general sanitary condition and of reducing the nuisance which may exist on their account, particularly as regards the breeding of flies. Until recently the limited number of sanitary inspectors restricted all regular inspection of stables to those maintained in cellars, as these were most likely to violate sanitary principles. In order better to control the fly nuisance, the director of the Bureau of Infectious Diseases suggested early last spring that the permit requirement should be extended to all the stables in the city, and with this object in view the department requested the Bureau of Municipal Research to make a study of stable conditions in New York and submit a report embodying recommendations. This bureau complied with the request, and among the recommendations made were the following: That a complete census of all stables be taken at once; that a thorough inspection be made twice a year; that the health department require all manure to be sprayed with iron sulphate solution when collected from stalls, and that disinfectants be used in stalls; that manure be kept covered, and removed at least every second day; that receptacles for manure be disinfected with lime or other effective disinfectant when emptied; that stables not complying with these rules be refused a license. The department regards green vitriol so corrosive as to render borax or lime a

better agent, but, as far as practicable, the other recommendations were acted on. As a consequence of this work, and that to be performed in sequence next spring, the department looks forward to a great reduction in the number of house flies and entertains the hope that this will favorably influence the infant mortality of next summer, as well as the prevalence of typhoid and infectious diseases generally.

NEW HOSPITAL, HUNTINGTON, L. I.—Miss Cornelia Prime of Huntington, Long Island, has given a site and building for the new hospital which the residents of that town have long desired to establish. It is also reported that she may endow the institution in the future. The site presented comprises two acres, and the large house on it will answer for hospital purposes when remodeled. In addition to the land, Miss Prime has also contributed for the work of reconstruction.

RELIEF FUND FOR BELGIAN PHYSICIANS.—A national committee, the secretary of which is Dr. H. Edwin Lewis of New York, has been organized to obtain funds for the relief of physicians and their families who are destitute in Belgium. Among the other New York physicians interested in the movement are Col. Charles E. Woodruff, U. S. Army Medical Corps, retired, and Drs. William Seaman Bainbridge, Parker Syms, Louis F. Bishop, J. Wallace Beveridge, Smith Ely Jeliffe, and H. Sheridan Baketel.

SAFETY AND SANITATION EXHIBITION.—The second annual safety and sanitation exhibition was formally opened on Dec. 14 by President McAneny of the Board of Aldermen, representing the mayor. In an address on the occasion by Arthur Williams it was stated that in this country 75,000 lives were annually lost through accidents, and that 35,000 of these were in the industrial world. In New York alone 3600 fatal accidents occur each year.

POST-MORTEM CESAREAN SECTION.—A case is reported from the Beth David Hospital in which a living child was delivered, by Cesarian section, three minutes after the sudden death of the mother from cardiac disease.

BEQUEST TO ST. LUKE'S HOSPITAL.—Among the charitable bequests in the will of Mrs. H. LeRoy Jones, a daughter of the late Ambrose Kingsland, a former mayor of New York, is one of $75,000 to St. Luke's Hospital.

HOSPITAL BUREAU OF STANDARDS AND SUPPLIES.—The recently published fifth annual report of the executive committee of the Hospital Bureau of Standards and Supplies records the activities of this organization for the year ended Sept. 30, 1914. At the present time 33 hospitals and charitable institutions are associated with this body and 68 agreements for the purchase of hospital supplies are in force. As a result of the five years of its operation the executive committee concludes that its methods promote hospital efficiency, not only by economy of purchases, but by the coördination of experience in the establishment of standards of economic administration.

MORTALITY FOR WEEK ENDING DECEMBER 12, 1914.—The most noteworthy feature of last week's mortality as compared with that of the corresponding week in 1913 was the large increase in the deaths from acute respiratory diseases, especially lobar pneumonia, there having been 149 deaths reported during the week as against 86; the deaths from bronchopneumonia increased from 81 to 95. This increase in the mortality from the acute respiratory diseases occurred in each of the boroughs of the city, and probably was due to the atmospheric conditions prevalent during the past fortnight.

The number of deaths reported during the past week was 1338 with a death-rate of 12.50 per 1000 of the population as compared with 1343 deaths and a death-rate of 13.04 for the corresponding week of last year, a decrease of 5 deaths and of .54 of a point in the rate, equivalent to a relative decrease of 58 deaths.

Viewed from the point of age grouping, infants under one year of age and between one and five years showed an increased mortality; between five and sixty-five years the mortality was approximately the same, whilst that at sixty-five years and over was considerably lower.

The death-rate since the first of January up to and including Saturday, Dec. 12, was 13.42 per 1000 of the population as against a rate of 13.75 for the corresponding period of last year, a decrease of one-third of a point.

Current Literature

MEDICAL RECORD.

NOVEMBER 28, 1914.

1. *ABBE, R. *Radium Beta Rays. The Efficient Factor in Repressive Action on Vital Cells.*
2. MORTON, W. J. *Imbedded Radium Tubes in the Treatment of Cancer. With Report of a Case of Sarcoma Remaining Cured Nine Years after Radiation.*
3. SAVINI, C. *Microscopical Traumatic Lesions of the Mucosa Found in Some Recent Cases of Appendicitis.*
4. LEONARD, E. F. *Report of a Case of Myxedema Allied to the Infective Exhaustive Group.*
5. SIMPSON, C. A. *Annular Serpiginous, Bullous Eruption Complicating Vaccination.*
6. STONE, W. B., AND FAY, A. S. *Acute Myelogenous Leukemia.*
7. WAUGH, W. F. *The Load Our Students Bear.*
8. EHRLICH, S. D. *A Case of Retroperitoneal and Extensive Subcutaneous Emphysema Following Intratracheal Anesthesia, with Recovery.*

1. Separated beta rays from radium, says Abbe, are demonstrated to be the efficient force most active against living cells. These rays are electrons or particles discharged from the radium atom, each being a charge of negative electricity. What the force is which actuates living cells is unknown, but it adds one link to the chain of facts to know that a charge of negative electrons carried into certain types of disorderly growing cell tissues reduces them to orderly growth. The permanence of this checking force is established. [L. D. C.]

DECEMBER 5, 1914.

1. EWING, J. *Precancerous Diseases and Precancerous Lesions, Especially in the Breast.*
2. WRIGHT, A. B. *Heredity and Predisposition in Life Insurance.*
3. ROBINSON, W. J. *Chronic Prostatitis and Its Treatment by the General Practitioner.*
4. BARBER, W. L., JR. *The Question of Intestinal Stasis.*
5. KNIPE, W. H. W. *Twilight Sleep in Practice.*
6. NORTH, J. *"Back to the Soil." The Relation of Pulmonary Tuberculosis to Soil Formation.*
7. UNGER, M. *A New Combined Head-Mirror and Face Protector.*

NEW YORK MEDICAL JOURNAL.

NOVEMBER 28, 1914.

1. ROE, J. O. *Phlegmons of the Upper Respiratory Tract.*
2. ROBINSON, B. *Intestinal Stasis.*
3. FISCHER, L. *Convulsions During Pertussis.*
4. FORBES, A. M. *Sciatic Pains.*
5. CUNNINGHAM, W. P. *Epithelioma Varium.*
6. REILLY, T. F. *Parageusia and Its Treatment.*
7. VOORHEES, I. W. *Voice Fatigue in Singers and Speakers.*
8. GARDINER, J. *Post-Partum Hemorrhage and the Treatment.*
9. *FAUGHT, F. A. *An Aid to the Auscultatory Blood Pressure Test.*
10. JENNINGS, W. B. *Garcia Fernandez.*
11. GROSZMANN, M. P. E. *The Determination of Exceptional Development in Children.*

9. Faught describes a bracelet which he has found very useful for keeping the stethoscope bell in position in taking blood pressure by the auscultatory method. It has the further advantage of doing away with annoying crepitus and other adventitious sounds in the arm. [L. D. C.]

DECEMBER 5, 1914.

1. *FRENCH, T. R. *Tonsillotomy versus Tonsillectomy.*
2. BUERGER, L. *Unusually Large Ureteral Calculi.*
3. OGILVY, C. *Backache.*
4. HARTSHORN, W. E. *Fracture of the Clavicle.*
5. COMSTOCK, A. *The Intravenous Treatment of Arthritic Processes.*
6. KNIGHT, C. P. *Local Anesthesia in Hernia Operations.*
7. KLEIN, S. R. *Urinary Findings in Various Pathological Conditions of the Alimentary Canal.*
8. BARDES, A. *Intracranial Diseases from the Ear.*
9. DIEFENDORF, B. *The Technic of Vaccination.*

1. French believes that in tonsil operations it is desirable to leave the capsules in the tonsillar fossae whenever possible. At least 80% of enlarged tonsils do not contain foci of infection and therefore do not need to be completely removed. Extensively diseased tonsils should of course be enucleated. [L. D. C.]

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

DECEMBER 5, 1914.

1. *DENNETT, R. H. *The Use of Boiled Milk in Infant-Feeding.*
2. OSTHEIMER, M. *Fragilitas Ossium.*
3. SHURLY, B. R. *Preventive Otolaryngology.*
4. KENNEDY, F. *Acute Insular Sclerosis and Its Concomitant Visual Disturbances.*
5. KROTOSZYNER, M. *Differential Diagnosis of Nephrolithiasis and Renal Tuberculosis by Roentgenography.*
6. *HINMAN, F. *The Operative Treatment of Tumors of the Testicle, with Report of Thirty Cases Treated by Orchidectomy.*
7. LOWER, W. E. *Diverticula of the Urinary Bladder, with Report of Cases.*
8. LOEB, V. *Acute Parenchymatous Glossitis.*
9. *GILMER, T. L., AND MOODY, A. M. *A Study of the Bacteriology of Alveolar Abscess and Infected Root Canals.*
10. *BILLINGS, F. *Mouth Infection as a Source of Systemic Disease.*
11. *MAYO, C. H. *Mouth Infection as a Source of Systemic Disease.*
12. ROSENOW, E. C. *Mouth Infection as a Source of Systemic Disease.*
13. CRAIG, C. B. *Peridental Infection as a Causative Factor in Nervous Diseases.*
14. CAMPBELL, A. E. *Some Important Phases of Railway Sanitation.*
15. *HERTZLER, A. E. *Local Anesthesia in the Prevention of After-Pain and Shock.*
16. WHERRY, W. B., AND LAMB, B. H. *Discovery of Bacterium Tularense in Wild Rabbits and the Danger of Its Transfer to Man. Preliminary Note.*

1. Dennett claims that the prolonged use of boiled milk, if properly administered, does not necessarily cause nutritional disturbances, such as rickets, anemia, malnutrition or poor musculature. Scurvy may be avoided by the use of orange juice in conjunction with boiled milk. Boiled milk does not cause digestive disturbances in normal infants and is therefore no more difficult to digest than unboiled milk. It often aids in overcoming digestive disorders. The change from boiled to unboiled may or may not cause digestive disturbance.

6. Hinman states that orchidectomy cures 15 to 20% of teratoma testis, but only when the testicle is removed before the onset of glandular or other metastases. A cure cannot be assured till nine years have elapsed. He describes the technic of the radical operation, in which the glands along the aorta to the pelvis of the kidney are removed.

9, 10, 11, 12. This symposium on mouth infections gives a good review of the subject but is not suited to abstract.

15. Hertzler does not believe with Crile that local anesthesia in addition to general will prevent shock in grave abdominal or many other operations. [E. H. R.]

DECEMBER 12, 1914.

1. LEE, F. S. *The Relation of the Medical Sciences to Clinical Medicine.*
2. REHFUSS, M. E., AND HAWK, P. B. *Gastro-Intestinal Studies. IV. Direct Evidence of the Secretion of a Gastric Juice of Constant Acid Concentration by the Human Subject.*
3. *HAYHURST, E. R. *The Prevalence of Occupational Factors in Disease, and Suggestions for Their Elimination.*
4. HOLMES, E. M. *Clinical Classifications of Ethmoiditis.*
5. SHAMBAUGH, G. E. *Pathology of the Ethmoid Labyrinth.*

6. FISHER, W. C. *I. The Section on Stomatology: Its Needs, Its Duties and Its Opportunities. II. The Field of Stomatology.*
7. BROWN, G. V. I. *The Section of Stomatology as a Factor in the Evolution of Dental and Medical Science.*
8. *SPITZER, W. M. *Continuous Painless Renal Hemorrhage and Its Treatment.*
9. FULLER, E. *Extraperitoneal Rupture of the Bladder: Its Surgical Management.*
10. ABBOTT, E. G. *The Mechanics of a Plaster-of-Paris Cast in Fixed Lateral Curvature of the Spine.*
11. STERN, W. G. *The Three Cardinal Clinical Signs of Fracture into or Near Joints.*
12. BLACK, J. H. *Prophylactic Vaccination Against Epidemic Meningitis. A Supplementary Note.*
13. SUTTON, R. L. *Trichotillomania.*
14. CADBURY, W. W. *Dermatolysis, with Report of Two Cases.*
15. PARKES, C. H. *A Bicornate Uterus Which Contained Three Pregnancies.*
16. BEESON, C. F. *The Thyroid Gland in Pellagra.*
17. LERCHE, W. *A Tack in the Eparterial Branch of the Right Main Bronchus.*
18. JOHNSON, T. A. *A Case of Cardiospasm, with Improvement in Method of Dilatation.*

3. Hayhurst from a considerable study makes the following interesting and vitally important observation and statement: Occupied persons other than agriculturists suffer an enormous mortality (figures show 74%) from well recognized preventable and prematurely degenerative diseases. From one-fourth to one-third of the medical afflictions of trades persons are due in whole or in great part to industrial health hazards. Specific occupational diseases, such as lead poisoning, are not recognized in more than one out of three or four instances, more especially the chronic cases. Too much importance is given to alcoholism, with a failure to appreciate that subjection to industrial health hazards in itself induces and promotes stimulantism.

8. Spitzer makes the following decisive statement in regard to so-called essential hematuria. The changes found in the kidneys of essential hematuria are identical with those found in passive congestion and are therefore caused by passive congestion. The bleeding is due to passive congestion, the kidney being an organ so constructed that it must of necessity bleed in the presence of passive congestion. It is erroneous to ascribe the bleeding to nephritis, as there are no clinical symptoms or urinary findings indicative of nephritis, nor can the latter be unilateral. Still it is admitted that if the bleeding continues, the pathologic changes in the kidney would be the same as in chronic interstitial nephritis. The passive congestion occurring in one kidney only is due to some interference with the outflow of blood which comes from a twisting of the kidney on a short pedicle. Operative interference is warranted only when it becomes necessary to save the patient's life because of an increasing secondary anemia. Bisection of the kidney for cure of this condition is contraindicated, and likewise dangerous. [E. H. R.]

THE ARCHIVES OF INTERNAL MEDICINE.

AUGUST, 1914.

1. *KING, J. H. *Studies in the Pathology of the Spleen.*
2. *COLEMAN, W., AND DUBOIS, E. F. *The Influence of the High-Calory Diet on the Expiratory Exchanges in Typhoid Fever.*
3. KESSEL, L., AND TASCHMAN, M. *A Study of Twenty-Nine Cases of Advanced Pulmonary Tuberculosis Treated by Artificial Pneumothorax.*
4. *PEABODY, F. W. *Studies of Acidosis and Dyspnea in Renal and Cardiac Disease.*
5. ROSENBLOOM, J., AND COHOE, B. A. *Clinical and Metabolism Studies in a Case of Myotonia Congenita—Thomsen's Disease.*
6. MUSSER, J. H., JR. *Study of a Case of Aplastic Anemia.*

1. King reviews the literature of splenic function, from which it is evident that the spleen has a very important influence in disease and experimental conditions associated with hemolysis. The writer reports the results of original investigations in which he sought to ascertain whether in such conditions unsaturated fatty acids could be demonstrated in the blood. He finds that after splenectomy there is an increase in the total fats and cholesterin in the blood and a reduction in their iodin-combining power (a lower iodin number). In clinical conditions associated with hemolysis, pernicious anemia, hemolytic jaundice, catarrhal jaundice and some forms of cirrhosis of the liver there is a decided increase in the value of the iodin number. Removal of the spleen reduces the iodin-combining value of the unsaturated fatty acids and renders the production of icterus by hemolyzing agents more difficult. It also greatly improves clinical conditions in which hemolysis is at work. Thus the spleen may be the central point in many diseases in which hemolysis and anemia are active, especially in pernicious anemia. The increase in the total fats and lipoids of the blood following splenectomy may explain the increased resistance to hemolysins and the increased resistance of the red blood cells found in asplenism. These substances have definite anti-hemolytic properties. Splenectomy is therefore indicated in pernicious anemia, hemolytic jaundice, some types of catarrhal jaundice and cirrhosis of the liver, where the hyperactive spleen unfavorably influences the anemia through its regulation of the highly hemolytic unsaturated fatty acids in the blood.

2. Coleman and DuBois report on an elaborate clinical study of the influence of the high-calory diet on the respiratory exchanges in typhoid fever. They find that the influence of a large ingestion of food is not of great importance in increasing heat production in the febrile stage of the disease. In other words, the large amount of food administered exhibits little or no specific dynamic action, thus removing the chief theoretical objection to the use of a liberal diet in typhoid. The patients examined had an average theoretical requirement of 38.5 calories per kilogram per day. This requirement, however, must be exceeded by from 50% to 100% in order to bring the patient into nitrogen and weight equilibrium. In the steep-curve period and during relapses some patients derived from 84% to 89% of their calories from carbohydrate, and in addition, transformed some carbohydrate into body-fat. The majority of the high-calory patients showed a sharp rise in the level of the respiratory quotients during the last days of the fever, which the writers interpret to mean that the regenerative processes of convalescence begin before the temperature reaches normal.

4. Peabody reports on a clinical study of the causes of dyspnea in cardiac and renal disease. Investigations have shown, he says, that the essential exciting stimulus to the respiratory centre is the hydrogen-ion concentration of the blood. The variations in the carbon dioxide content, and consequently of the alveolar air, are but the result of the attempt on the part of the organism to keep the hydrogen-ion concentration at a constant value. The carbon dioxide in the blood rises as the amount of non-volatile acid falls, and the carbon dioxide falls as the production of other acids rises. The writer concludes from his series of cases that the mild acidosis often associated with uncomplicated chronic nephritis is compensated for by the increased excretion of acids by the kidney. It is only in uremia that non-volatile acids accumulate in the blood in sufficient amount to cause depression of carbon dioxide tension in the alveolar air. The development of acidosis bears little relation to the ac-

cumulation of non-protein nitrogen in the blood or to the output of phenolsulphonephthalein. Acidosis is not the direct or sole cause of dyspnea in cardiorenal disease. A high grade of acidosis may exist without causing noticeable change in respiration, and in some cases the degree of acidosis is not sufficient to explain the dyspnea on the basis of increased stimulus to respiration alone. Increased excitability of the respiratory center is probably an important factor in the causation of cardiac dyspnea. Such an increase in excitability may well be caused by a lowering of the oxygen tension and be dependent on an inadequate blood-flow. [L. D. C.]

SURGERY, GYNECOLOGY AND OBSTETRICS.

DECEMBER, 1914.

1. *MAYO, W. J. *The Radical Operation for Cancer of the Pyloric End of the Stomach.*
2. DAVIS, G. G. *Laverenda's Ankle.*
3. *CUNNINGHAM, J. H. *The Operative Treatment of Carcinoma of the Penis.*
4. ARMSTRONG, G. E., AND MULLALLY, E. J. *Two Cases of Filariasis.*
5. *GRANT, S. G. *Surgical Myxorrhea Coli, Myxorrhea Membranacea and Myxorrhea Colica.*
6. FULLERTON, W. D. *Uterine Sarcoma.*
7. *BLAIR, E. G. *Dactylocostal (Osseous and Cartilaginous) Rhinoplasty.*
8. LIPPMAN, C. W. *The Duodenum: A Roentgen Study.*
9. *PHILLIPS, C. E. *Syndesmorrhaphy and Syndesmoplasty: The Operative Treatment of Ruptured Ligaments.*
10. *TRACY, S. C. *The Phenolsulphonephthalein Test from the Viewpoint of the Abdominal Surgeon.*
11. CONNELL, F. G. *The Chronic Abdomen: A Review of Nineteen Cases of Pericolitis and Ileal Kink in Which the Appendix Had Been Previously Removed.*
12. JONES, H. E. *Some Contraindications Which Determine the Extent of an Operation in Septic Invasion of the Lateral Sinus.*
13. BENNETT, C. E. *Polycystic Kidney.*
14. LEWIS, E. G. *Pseudomyxoma of the Peritoneum.*
15. SUDLER, M. T. *Enchondromata, with Special Reference to the Scapula.*
16. KRETSCHMER, H. L., AND MOODY, A. M. *Malignant Papillary Cystadenoma of the Kidney with Metastases.*
17. GARDNER, L. N. *A Study of the Efficiency of the Saliz-Gould Method of Testing Antiseptic Solutions.*

1. Mayo by beautiful plates shows the technic of his operation for gastrojejunostomy, using the stump of the stomach instead of closing this and doing gastroenterostomy, after excision for carcinoma.

3. Cunningham describes the radical operation for carcinoma of the penis and states that our operation should be much more radical than formerly in order to obtain cure.

5. Grant's article is of interest but not suited to abstract. He goes into considerable detail.

7. This article is well illustrated by photographs and text and shows excellent results.

9. Phillips' article is of very practical interest.

10. Tracy's article emphasizes the necessity of depending more on clinical signs and symptoms than on such a test as the phenolsulphonephthalein test to determine the actual function of the kidney.

[E. H. R.]

INDIAN MEDICAL GAZETTE.

SEPTEMBER, 1914.

1. HEHIR, P. *Remarks on Water Supplies of Troops in India.*
2. MATTHEWS, E. A. C. *The Treatment of Malignant New Growths by Dr. De Keating-Hart's Method of Fulguration and Thermo-Radio Therapy.*
3. WHITAMORE, V. N. *Some Observations on Anemia Occurring in Some Indian Troops Stationed in Singapore.*
4. NESFIELD, V. B. *The Clear Pupil after Cataract Extraction.*
5. *BAGCHI, K. P. *Devil Driving.*
6. GOBINDAN-NAIR, T. K. *Ascaris Lumbricoides Infection in Malabar District.*
7. BARRE, C. C. *Ruptured Extra-Uterine Pregnancy; Laparotomy; Delayed Chloroform Poisoning; Recovery.*
8. HARLAND, G. B. *A Note on the Surgical Treatment of Goitre in Tibet.*
9. PARK, S. *Anagnostakis' Operation for Trichiasis.*
10. NEWTON, D. C. *Emetine in Young Children.*

5. Bagshi presents a graphic account of the phenomenon of devil driving, representing the beliefs of villagers in Bengal and illustrating the ways of some village *kavirajs.* The panchoa devils, classified as silent and crying, are supposed to possess new born babies, causing them various maladies and symptoms.

[R. M. G.]

NOVEMBER, 1914.

1. HEFFERNAN, P. *Asylum Dysentery.*
2. SHAW, W. S. J. *Some Generalization on the Scope, Construction and Administration of Central Asylums in India.*
3. HEFFERNAN, P. *Notes on Two Cases of Hysteria in Males.*
4. BHIDAY, B. S. *Two Cases of Anergic Stupor Treated with Thyroid Gland Extract.*
5. SMITH, H. *The Treatment of the Earlier Stages of Senile Cataracts.*
6. SUMNER, F. W. *Prevention and Treatment of Septic Wounds in Warfare.*

DEUTSCHE MEDIZINISCHE WOCHENSCHRIFT.

No. 34. AUGUST 20, 1914.

1. GROBER. *The Treatment of Threatening Symptoms in the Hemorrhagic Diatheses in Leukemia and in Pseudo-leukemia.*
2. RIEDEL. *A Case of Thyroid Tuberculosis Operated upon Twenty-five Years Previously.*
3. *JULIUSBURGER, E. *The Coagulen of Kocher and Fonio.*
4. *V. MUTSCHENBACHER, T. *Prevention of Hemorrhage by the Coagulen of Kocher and Fonio.*
5. DREYER, L. *A Contribution to Vascular Surgery.*
6. SCHUR, M. *The Treatment of Ulcus Corneae Serpens with Aethylhydrocuprein.*
7. *SCHNEIDER, A., AND V. TEUBERN, F. *Studies on Occult Blood in Feces, Tested by the Phenolphthalein Method of Boas.*

3 and 4. Coagulen Kocher-Fonio is a preparation from blood platelets supposed to contain substances which stimulate the clotting of blood. It may be given by mouth but is readily soluble in saline solution, can be sterilized, and thus is suitable for intravenous injection. Juliusburger and v. Mutschenbacher have used coagulen to prevent bleeding of various types, whether occurring in phthisis, hemophilia or after operation. They have observed no ill effects and no tendency to intravascular clotting. They agree that the substance is a valuable hemostatic remedy.

7. Schneider and v. Teubern report comparative tests for occult blood in feces, using the methods of Weber-Boas, reported in No. 23 of this periodical, and the aloin test. They conclude that the phenolphthalein test of Boas is useful and practical and that

it is more delicate than the other tests. Thus its introduction marks a step forward in the methods of clinical diagnosis for gastrointestinal diseases.

[R. F.]

No. 35. AUGUST 27, 1914.

1. JUNG, P. *The Treatment of Extra-uterine Pregnancy.*
2. ROHDE, M. *The Value of the Wassermann Reaction.*
3. GOEBEL, O. *Amusia and Aphasia.*
4. HOSEMANN. *Trauma of the Skull and Lumbar Puncture.*
5. SCHLIEP, L. *Rupture of the Bladder.*
6. *FALK, A. *The Treatment of Tetanus with Subcutaneous Injections of Magnesium.*
7. *FORNET, W. *The Progress in Immunization against Typhoid and Cholera.*

6. Falk has treated three cases of tetanus in children with subcutaneous injections of magnesium sulphate, as suggested by Meltzer. Falk discusses the advantages of this form of treatment and believes that it may be of great practical importance in war when it is impossible to obtain serum.

7. Fornet quotes figures to show the importance of vaccination against typhoid and cholera. He mentions the various methods by which these vaccines may be prepared. Since vaccination has been proved harmless, he advocates that it should be used generally among soldiers exposed to either of these diseases, and among nurses, physicians and hospital attendants.

[R. F.]

MÜNCHENER MEDIZINISCHE WOCHENSCHRIFT.

No. 38. SEPTEMBER 22, 1914.

1. HAMM, A. *Resorption or Retention Fever.*
2. MAGNUS-ALSLEBEN, E. *Edema in Nephritis.*
3. *CLAUDIUS, M. *The Colorimetric Estimation of Albumin in Autenrieth's Colorimeter.*
4. LIPP-WALDSTETTEN, H. *A Simple Test for Bile and Hemoglobin in Urine.*
5. GLASER, W. *The Pathology of Paratyphoid Fever.*
6. ARNOLD, A., AND HÖLZEL, H. *Intravenous Injections of Arthigonin in Gonorrhea.*
7. RENISCH. *Collargol and Arthigonin in the Complications of Gonorrhea.*
8. MERK, L. *On the Reporting of Venereal Disease.*
9. *ROMBERG, E. *The Treatment of Typhoid Fever.*
10. SCHMIDT, A. *The Differential Diagnosis between Dysentery and Similar Intestinal Diseases.*
11. RIEDINGER, F. *The Treatment of Intestinal Prolapse in the Field.*
12. REH. *A Litter for Use in the Field.*
13. v. BAEYER. *The Preparation of Plaster Splints.*
14. ZUR VERTH, M. *Sanitary Rules for Sailors.*
15. HERCHER, F. *Saline Solutions for Subcutaneous or Intravenous Use Prepared from Spring or Tap Water and Common Salt.*
16. STEIMANN, *Reserve Hospitals and Beds.*
17. KLAPP, R. *Surgical Experiences from the Balkan War.*

3. Claudius describes a colorimetric determination of albumin. The albumin is precipitated by trichloracetic acid and tannic acid, to which is added acid fuchsin. The albumin absorbs an amount of the dye which is in direct proportion to the amount precipitated, thus from the color of the filtrate a quantitative determination of both precipitated dye and albumin can be made. Claudius describes the different reagents and apparatus necessary for the test, and gives analyses which compare the quantitative estimation of albumin by several methods. He concludes that the colorimetric method, from its simplicity and accuracy, is an excellent clinical test.

9. Romberg emphasizes the important part that typhoid plays in war despite anti-typhoid inoculation, which he believes is too time-consuming to become a general measure. The appearance of the tongue, in the absence of rose spots and enlarged spleen, is one of the most characteristic physical signs of the disease. A sufficient diet is the most important single factor in treatment. A patient should receive at least 35 calories per kilo of body weight per day, and as much more as possible. Romberg inclines to a liquid diet, mainly, with milk sugar. He does not object to finely ground meat and vegetables, since they become a paste in the intestines, and cannot be mechanically injurious. Care of the mouth, absolute quiet and a comfortable bed are essential for the proper care of patients. Hydrotherapy is much less important in the treatment of typhoid than it was twenty-five years ago. Romberg believes that baths are useless unless a hyperpyrexia occurs or unless hydrotherapy in indicated to stimulate restlessness and consciousness. Caffein, camphor or strophanthin are used to best advantage as circulatory stimulants. For hemorrhage, absolute rest is indicated, starvation for a few days, opium and saline infusions in extreme cases. Perforation, of course, is a surgical complication.

[R. F.]

No. 39. SEPTEMBER 29, 1914.

1. HOLZKNECHT AND LIPPMAN. *A Simplification of the Method for Examining the Duodenal Contents.*
2. BLUMENTHAL, N., AND FRÄNKEL, E. *Studies with the Meiostagmin Reaction.*
3. ISENSCHMID, R., AND SCHMENSKY, W. *The Importance of Leucocytic Inclusion for the Diagnosis of Scarlet Fever.*
4. BEUMER, H. *Thymus and Lymph-node Extracts in Abderhalden's Dialysis Method.*
5. *AMMENHAÜSER, W. *Abderhalden's Dialysis Method in Pulmonary Tuberculosis.*
6. WOLFF, L. K. *A New Treatment for Conjunctivitis Caused by the Diplo-bacillus.*
7. HEINE. *Eye Wounds.*
8. SÜPFLE, K. *Grotan and Festalkol as Hand Disinfectants.*
9. STRAUB, W. *Foreign Drugs.*
10. *ROSENTHAL, F. *The Prevention of Epidemics.*
11. PÜRCKHAUSER, R. *An Improvised Bandaging Table.*
12. BRUCK, F. *The Nasal Dilator of Feldbausch and Roth.*

5. Ammenhaüser has applied Abderhalden's method to the diagnosis of tuberculosis, using as tissue extracts lung, lymph node, placenta, and the filtrate from tuberculosis sputum. His sixty observations were carefully controlled. His results show that in pulmonary tuberculosis or tubercular lymphadenitis, the blood contains specific anti-ferments to lung, lymph node or to albumin obtained from tubercle bacilli. In lung disease other than tuberculosis, extract of lung tissue only is affected by the blood ferments; in normal serum no specific ferments are found. In advanced pulmonary tuberculosis the specific ferments of the blood may disappear. This indicates an unfavorable prognosis. On the whole, Ammenhaüser concludes that Abderhalden's method may prove of great importance in the diagnosis of early tuberculosis, and in the prognosis of advanced tuberculosis.

10. Rosenthal emphasizes the constant exposure to epidemics which large bodies of troops suffer from. He believes that each individual should be forbidden to drink unboiled liquids or to eat green fruits and vegetables, should be made to avoid bodily or gastric excesses, and should be trained carefully to wash with soap and water before each meal. He advocates the immediate isolation of persons suffering from a violent acute diarrhea and suggests military control of the distribution of water and ices in cafés, restaurants and streets.

[R. F.]

Miscellany.

AN APPEAL FOR AID FOR BELGIAN PHYSICIANS AND SURGEONS.

A RECENT letter to a number of surgeons of the United States written by Sir Rickman Godlee of London, chairman of a committee organized in Great Britain in aid of their Belgian colleagues, in which Sir Rickman appeals to the profession of the United States for aid in relieving the distress in Belgium, has resulted in the organization of an American committee which will volunteer to accept subscriptions in money and surgical or pharmaceutical supplies, and distribute the same, to the best of their ability, among the Belgian sufferers.

The following stories, one by Professor C. Jacobs, of the University of Brussels, the other by Sir Gilbert Parker, in a recent letter to the *Chicago Tribune*, explain in a vivid way the needs of the Belgians:

THE POSITION OF BELGIAN DOCTORS AND PHARMACISTS.

BY PROFESSOR C. JACOBS, UNIVERSITY OF BRUSSELS.

Belgium, a blood-stained and ruined country in the horrors of despair, claims the help of her friends to whom her freely consented sacrifice has brought a ray of hope in the dreadful nightmare of the past three and a half months.

I raise my voice with a feeling of intense pity on behalf of thousands of our weeping brethren in their Calvary of suffering, but it is my pride to carry out this duty to my country. All the evils of war have been thrust upon us at the same time—a useless and cruel holocaust of human lives, a decimated, despairing, and starving population, ruined homes, and, far worse than all, our children—the only hope of our country—are being mown down by want and disease.

Our doctors have not been spared, they, too, are bearing a heavy share of the general suffering. And now long weeks—nay months—of trial stand before them, during which they know that they will have to bear a terrible burden. They will have to devote themselves untiringly, giving all their care and time, and even their lives, if need be, to the cause of their country; and yet many of them are homeless, deprived of their laboratories, instruments,, and their medical stores. What will become of those that still remain of our people, threatened as they are by the grim havoc of war and by contagious disease, its constant follower?

In anticipation of these inevitable consequences it has become my duty, as the spokesman of my Belgian colleagues, to appeal to the medical and pharmaceutical world that an impulse of international fraternity may come to the aid of Belgian doctors and pharmacists. Is it realized that we in Belgium have suffered and are suffering? Duty, and duty only, has bound our doctors and pharmacists to their posts in the devastated localities; some of them are carrying on their profession in the ruined remains of destroyed buildings, whereas others have to improvise at haphazard any kind of shelter for their Samaritan work. Need I describe the manner in which they sustain themselves, and how they manage to nourish their wives and children?

I have witnessed such misery amongst them! Some have had to work as navvies in order to have a few pence in their pockets; others have told me that they had not seen bread for a fortnight, but had lived exclusively on potatoes. Others had a meager bunch of straw laid on the bare ground as a bedstead; the only pair of boots owned by one of them was falling to pieces in tatters. Men I have seen were dressed in torn garments and their children were in rags. One of my colleagues had to live on wayside herbs for three days and three nights, and his wife shared his fate! A professor of a university, bereft of everything, was, when I saw him, in dire want of a bed, and another of equal academic standard was wandering haggard over the countryside, searching in vain for a beloved family. And some of our ranks have been taken as hostages, others have been shot, and their widows and orphans have been left deprived of everything.

This description presents a genuine picture of the distress of the Belgian medical profession, but when these educated people are struck down by want they will never beg for charity; it must be brought to them. It is impossible to calculate how many of them are in this sore distress, and some have been so for days and weeks, but it is easy to see that the distress must be very widespread. Considering now the medical men only, Belgium contained 4800 doctors.

At least 1000 of the doctors are now absolutely poverty-stricken, and 2000 to 3500 doctors are suffering cruelly through this war. We had 1800 pharmacists all over the country, and at least 300 of them are unable to earn their living, and all of them, with very few exceptions, are deprived of the most necessary trading stock. I dare say that my estimate is below reality.

Consider the immense suffering that our medical brethren have gone through and are still going through. Their pathetic and lamentable distress should unite all in the desire to relieve it. These practitioners have given a lesson to the world of unfaltering energy, but now their breaking courage will have to be kept up. In this emergency I call on the medical profession to rally to our help. It will be for us a great debt of honor and of eternal gratitude.

Sir Gilbert Parker, who visited the frontier towns of Belgium and the camps of the refugees, for the purpose of making a personal investigation says:

Whoever or whatever country is to blame for this war, Belgium is innocent Her hands are free from stain. She has kept the faith. She saw it with the eyes of duty and honor. Her government is carried on in another land. Her king is in the trenches. Her army is decimated, but the last decimals fight on.

Many cities and towns have been destroyed; others, reduced or shattered, struggle in vain to feed their poor and broken populations. Stones and crosses mark the places where small communities lived their peaceful lives before the invasion. The Belgian people now live in the abyss of want and woe.

All this I knew in England, but knew it from the reports of others. I did not, could not know what the destitution, the desolation of Belgium was, what were the imperative needs of this people, until I got to Holland and to the borders of Belgian territory.

There at Maastricht I saw fugitives crossing the frontier into Holland with all their wordly goods upon their shoulders or in their hands, or with nothing at all, seeking hospitality of a little land which itself feels, though it is neutral, the painful stress and cost of the war.

I begin to understand what the sufferings and needs of Belgium are. They are such that the horror of it all almost paralyzes expression. I met at Maastricht Belgians, representatives of municipalities, who said they had food for only a fortnight longer. And what was the food they had? No meat, no vegetables, but

only one-third of a soldier's rations of bread for each person each day. At Liége as I write there is food for only three days.

In Belgium itself the misery of the populace is greater than the misery of the Belgian fugitives in other countries, such as Holland, where there have come since the fall of Liége 1,500,000 fugitives. To gauge what that misery in Belgium is, think of what even the fugitives suffer. I have seen in a room without fire, the walls damp, the floor without covering, not even straw, nine women and eight children, one on an improvised bed seriously ill. Their homes in Belgium were leveled with the ground.

Of all the great powers of the world the United States is the only one not at war or in peril of war. Of all the foremost nations of the world the United States is the only one that can save Belgium from starvation if she will. She was the only nation that Germany would allow a foothold for humanity's sake in Belgium.

No such opportunity was ever given to a people; no such test ever came to a Christian people in all the records of time. Will the American nation rise to the chance given to it to prove that its civilization is a real thing and that its acts measure up with its inherent and professed Christianity?

The price of one good meal for a family in an American home will keep a Belgian alive for a fortnight.

Probably the United States has 18,000,000 homes. How many of them will deny themselves a meal for martyred Belgium? The mass of the American people do not need to deny themselves anything to give to Belgium.

The whole standard of living on the American continent, in the United States and Canada, is so much higher than the European standard that if they lowered the scale by one-tenth just for one six months, the Belgian problem would be solved.

This is the story of the condition of our profession in Belgium. It must appeal to the generous instincts of every medical man in our favored country. The medical men whose names are given below have consented to act as a committee, and will volunteer to see that all contributions of whatever kind that may be given to relieve the distress of the medical men of Belgium are promptly and economically distributed where they will do the most good. Dr. Frank F. Simpson, who has consented to act as treasurer of the committee, will place himself in touch with relief committees already organized and act in conjunction with them, or if necessary, will act independently if better results can be accomplished in that way. Money contributed will be converted into supplies, as cash, obviously, can be of little value in the devastated country.

The American committee will undoubtedly operate through the relief committees of this country that are now specially operating in Belgium, and will have its packages prepared by instrument dealers and pharmaceutical houses of the United States and shipped directly to their destination.

The committee of physicians who have consented to act as sponsors for these contributions is as follows:

William L. Rodman, president-elect of the American Medical Association.

Charles H. Mayo, president of the Clinical Congress of Surgeons of North America.

J. M. T. Finney, president of the American College of Surgeons.

George H. Simmons, editor of the *Journal of the American Medical Association.*

THOMAS L. STEDMAN, editor of the *Medical Record.*

E. W. Taylor, editor of the *Boston Medical and Surgical Journal.*

Franklin H. Martin, editor of *Surgery, Gynecology and Obstetrics.*

Howard Canning Taylor, New York.

Frank F. Simpson, Pittsburgh (treasurer).

Contributions may be sent directly to Dr. Frank F. Simpson, 7048 Jenkins Arcade Building, Pittsburgh, Pa., or to the Belgian Physicians' Relief Fund, in care of the editors of the following journals: *Journal of the American Medical Association, Medical Record, Boston Medical and Surgical Journal, Surgery, Gynecology and Obstetrics.*

ANCIENT, MEDIEVAL, AND MODERN METHODS OF CARING FOR THE WOUNDED IN WAR.

THE *British Medical Journal* has recently published an interesting sketch of the origin and development of the Red Cross Society, preceded by an account of methods of caring for those wounded in battle in classic antiquity and in the middle ages. Many of the statements in this article are derived from Withington's "Medical History from the Earliest Times."

"One of the oldest authentic records of Greek military medicine, according to Withington, belongs to the period of the Persian wars, about B.C. 450. This is an inscription found at Darli in Cyprus, which states that when the men of Idaliou went to repel an inroad of Persians and Kitians, Onasilos and his brothers went with them and tended the wounded free of charge. Their services were, however, generously rewarded afterwards. The story of the death of Epaminondas at Mantineia when the arrow was extracted from his chest shows that in 362 B.C. there were surgeons in the Theban army. Philip of Macedon and Alexander the Great both had doctors, and a detailed account is given by Quintus Curtius of the extraction of an arrow from Alexander's chest by the surgeon Critobulus. A Hippocratic writer advises the young surgeon to seek opportunities of following a military expedition, and refers to works specially devoted to army surgery. Diocles invented the graphiscus, a spoonlike instrument for extracting embedded weapons, afterwards much used by the Romans.

"The Egyptians had paid medical officers to look after their troops in war. Ptolemy Philometer, who defeated Alexander Balas, the pretender to the throne of Syria (B.C. 146), was

thrown from his horse and died while in the hands of the surgeons, who apparently tried to trephine: Ptolemaeus in caput graviter vulneratus, inter curationem, dum ossa medici terebrare contendunt, exspiravit.

"The Romans had a regular medical service with their armies, as is shown by many inscriptions. In his essay entitled 'Was the Roman Army Provided with Medical Officers?' Sir James Simpson collected a number of passages from ancient writers, showing that the Roman army as far back at least as the third century A.D. had physicians and surgeons serving in it. Vegetius, who wrote a treatise, *De Re Militari,* towards the end of the fourth century, devotes a chapter to the care of the health of an army and refers to the care of sick soldiers by medical art (*arte medicorum*). Before him Galen had said that the doctors employed in the German wars and having the opportunity of dissecting the bodies of the barbarians did not learn more than cooks know from handling dead animals. Each cohort, consisting of 1000 to 1500 men, was provided with four surgeons (*medicus militum* and *medicus cohortis*). The Pretorians had in addition *clinici,* or pure physicians. There was also the *medicus legionis,* an important rank, as each legion consisted of ten cohorts of about 6500 men. The surgeons ranked with the standard bearers and trumpeters, among the non-commissioned officers, and they wore the ordinary dress and arms of the legionaries. With the standing army came the stationary camps with *medici castrenses* and a *valetudinarium* or military hospital; the first definite mention of such a hospital is by Hyginus Gromaticus in his treatise *De Castrometatione,* written in the second century. When more than three legions were in the camp there were additional hospitals. This system was continued during the Byzantine Empire with the addition of *deputati,* who rode immediately behind the fighting line with drinks and dressings and picked up the wounded, and the *nosocomi,* or male nurses, attached to the military hospitals. The Roman navy was also provided with surgeons, and the epitaphs of several *medici* of triremes still survive.

"In the twelfth century Saladin had a regular medical staff with his army, which even comprised apothecaries. He also allowed the Knights Hospitallers to minister to the wounded Crusaders in the conquered city of Jerusalem without interference. In the earliest Middle Ages the wounded soldier was looked after first by women and afterwards by surgeons, who either formed part of the general levy or were attached to the person of the king or some great noble. Withington says the English were the first of Western nations to originate something like an army medical service. The first trace of a military medical service in the English army is in the fourteenth century, when Edward I took three physicians and four surgeons with him into the field. The two seniors received the pay of a knight, two shillings *per diem.* It seems possible that John of Arderne, who was acquainted with the Black Prince, was present with him at the battle of Crécy. Nicholas Colnet, physician, and Thomas Morstede, surgeon, went with Henry V to Agincourt. Both were attended by three mounted archers and Morstede had besides twelve assistants.

"In 1563 William Clowes was a surgeon in the army commanded by Ambrose, Earl of Warwick, and he afterwards served in the English fleet against the Armada in 1588. John Woodall, who was born in 1569, served abroad, and appears to have been the first to recommend lime juice in the treatment of scurvy. He was the author of *The Surgeon's Mate,* published in 1617, and of a companion treatise, the *Viaticum,* which appeared in 1628. These two books were long the text-books of naval surgeons. Richard Wiseman served as a surgeon on the King's side in the Civil War. He was for many months attached to the troops under the command of the Prince of Wales, afterward Charles II; later he was sergeant surgeon to the King.

"The first mention of ambulances seems to be in Hirstius's *De Bello Africano,* where he says that after the battle fought near Ruspina, Labienus ordered his wounded to be carried in wagons (*plostris*) to Adrumentum. But the credit for the establishment of field hospitals and ambulances on any considerable scale seems to be due to Isabella the Catholic of Spain. During the war of Granada (1483-87) the queen caused a number of large tents, known as 'the Queen's Hospitals,' to be always reserved for the sick and wounded, and furnished them with the requisite attendants and medicines at her own charge. Speaking of the siege of Alora in 1484, the Spanish historian, Hernando Del Pulgar, writes:

" 'For the care of the sick and wounded the queen sent always to the camp six large tents and their furniture, together with physicians, surgeons, medicines and attendants, and commanded that they should charge nothing, for she would pay for all. These tents were called the Queen's Hospital.'

"On the surrender of Malaga, 1487, the Spanish army, on its entry, was followed by the Queen's Hospital in 400 wagons ('ambulancias'). At the siege of Baza, two years later, an eye-witness, Peter Martyr, wrote to the Archbishop of Milan as follows:

" 'Four huge hospital tents, the careful provision of queenly piety, are a sight worth seeing. They are intended not only for the wounded, but for those laboring under any disease. The physicians, apothecaries, surgeons, and other attendants are as numerous, the order, diligence and supply of all things needful as complete as in your suburban Infirmary of the Holy Spirit, or the great Milan Hospital itself. Every sickness and casualty is met and provided for by the royal bounty, except where Nature's appointed day is at hand.'

"The queen herself visited the wounded, and when her couriers hinted that this was contrary to Castilian etiquette, she is said to have replied:

" 'Let me go to them, for they have no mothers here, and it will soothe them in their pain and weakness to find that they are not uncared for.'

"Pedro Bosca, in an oration delivered at Rome on Nov. 1, 1487, before the senate of Cardinals in celebration of the victory gained at Malabar, says:

" 'The Queen's Hospital comprised nearly 400 waggons with awnings, and the wounded were nursed not by the highly improper persons who usually follow armies, but by most respectable matrons selected for the work.'

"The French army, which during the period of Richelieu's power rose from 12,000 men in 1621 to 150,000 in 1638, was without military hospitals. The first was established in 1639. Before that each company had a surgeon attached to it, and medical help was sometimes given by the priests who ministered to the spiritual needs of the soldiers. Disabled soldiers were quartered in monasteries, but the habits of military life did not tend to make them edifying inmates, and the monks were always glad to get rid of them as soon as they could. In the reign of Louis XIV Louvois tried to establish a regular military medical service, but without success. Disease raged in the army, and the condition of the sick and wounded was to the last degree wretched. In 1667 an inspector reported that he found sixteen men in four beds in huts so full of straw that it was dangerous to make a fire, and with muddy floors constantly damp. Apparently the attempt to establish hospitals in 1639 had not been followed up, for Louvois made another effort, which was also a failure. A report made in 1689 on the hospitals of Mont Royal and Sarrelouis stated that the soldiers were lying on straw closely packed together; at Strassburg they lay three in a bed. The surgeons are described as ignorant and negligent, doing nothing but cut off legs and arms without endeavoring to save them. Generally, all the wounded died of hemorrhage or sepsis. It would have been better for them if they had been dispatched in the summary fashion described by Ambroise Paré in his account of the campaign in Turin in 1537, in which he accompanied Monsieur de Montejan, Colonel-General of the Infantry, whose surgeon he was at the time. He says:

" 'Being come into the city I entered into a stable thinking to lodge my own and my man's horse and found four dead soldiers and three propped against the wall, their features all changed, and they neither saw, heard, nor spake, and their clothes were still smouldering where the gunpowder had burnt them. As I was looking at them with pity, there came an old soldier who asked me if there were any way to cure them. I said, no. And then he went up to them and cut their throats gently (*tout doucement*) and without ill will towards them. Seeing this great cruelty I told him he was a villain; he answered he prayed God when he should be in such a plight he might find someone to do the same for him that he should not linger in misery.'

"If disabled soldiers were thus treated by their own side, it may be conjectured that as a rule the wounded and sick of the enemy were left to their fate. The dawn of a better state of things came in the eighteenth century.

"In the Austrian War of Succession a treaty was concluded to regard the hospitals as sacred from attack. In 1743 the Duc de Noailles and Lord Stair agreed that the hospitals, the wounded, and the military surgeons should be treated as neutrals. In the seven years' war Louis XV and Frederick II agreed to consider all the medical staff as neutrals, and as such exempt from capture. In 1759 a similar arrangement was made between the Marquis de Barail, commanding in Flanders, and the English general, Henry Seymour Conway. The idea of neutralization of the wounded and those who tended them was making progress, when the French Revolution rudely checked its growth. The Convention decreed the immediate execution of prisoners, whether wounded or not. In 1800 Moreau and the Austrian General Kray, however, agreed to take equal care of all wounded in their hands, whether friends or foes. These were but isolated displays of humanity. The work of Florence Nightingale in the Crimea was a powerful stimulus to the organization of help for the sick and wounded. But unity of international action was still lacking. It was not till some years after the middle of the nineteenth century that the Red Cross organization had its birth. The founder was Henri Dunant, a remarkable man whose name has been almost forgotten. In the last edition of the *Encyclopaedia Brittanica* he is dismissed in one line, in whch he is wrongly described as a physician, and in the only mention of him in a leading London newspaper that we have seen since the outbreak of the present war his name was twice misspelt 'Durrant.' It may not be amiss, therefore, to give some account of a man who was one of the greatest benefactors of his fellow creatures in modern times.

"Henri Dunant was born at Geneva on May 8, 1828, of a family belonging to the magistracy of the Swiss Republic. He was the son of a member of the representative council, and received a very careful education, which included a training in philanthropy, from his mother, *née* Colladon. Her ancestors had been members of the nobility of the Berry before the Reformation, on the outbreak of which they left Bourges. One of Dunant's brothers was a distinguished doctor, long professor of hygiene in the University of Geneva, and organizer and general secretary of the International Congress of Hygiene held at Geneva in 1882. Dunant was greatly influenced by Florence Nightingale, Elizabeth Fry, and Harriet Beecher Stowe. With his mind full of

the work of Florence Nightingale, he visited the battlefield of Solferino, where he witnessed the sufferings of the wounded lying whole days on the ground. With the help of some women he organized a service of help in the little town of Castiglione, himself giving aid to the soldiers and dressing the wounds without regard to nationality. He was known as 'Le Monsieur en Blanc' (the 'Man in White') on account of his summer attire. These scenes of horror gave rise in his mind to the idea of volunteers trained in the work of stretcher drill and having a knowledge of first aid organized on a permanent basis, well disciplined and being, like the hospitals and their material, completely neutral. He thought that this result might be easily attained if nations by a special convention were to adopt a common symbol which should designate the character and function of such workers. In 1859 each nation indeed had for its field hospitals a special flag, but the colors were almost always unknown to the enemy, so that the ambulances were constantly fired on, the wounded taken prisoners and the surgeons arrested or killed at the very moment when they were looking after the wounded. This was the origin of a distinctive flag for ambulances and hospitals—the white flag with the red cross. The form of the flag was intended to be a compliment to Dunant's native country; it is the converse of the Swiss flag, which is a white cross on a red ground.

"Four days after Solferino Dunant went to Borghetto, and spoke to MacMahon of the lamentable state of the wounded, begging permission to use the Austrian surgeons who had been taken prisoners by the French. The marshal advised him to go to Cavriana to see the Emperor, who received him favorably, and on July 1 the following order was published:

"'The physicians and surgeons of the Austrian army who have been made prisoners while dressing the wounded shall be restored to liberty without condition on their request. Those who have ministered to the wounded at Solferino gathered in the ambulances of Castiglione will be allowed to go back first to Austria.'

"From that time Napoleon III interested himself in Dunant's scheme, and declared his adhesion to the principle of the neutralization of the wounded, of the ambulances, and their personnel. The Emperor himself suggested that inhabitants of the country who should give aid to the wounded should be treated as neutrals. On his return to Geneva, Dunant wrote his *Souvenir de Soférino*, which brought him the enthusiastic approval of many distinguished men, and was at once translated into nearly every European language. He did not, however, escape detraction or jealousy, but he was not discouraged and persevered with the work. One of his keenest critics was Marshal Randon, who in the true spirit of the old soldiers who resented the interference of Florence Nightingale, exclaimed, 'Why should these civilians mix themselves up with what does not concern them?' On the other hand he had the approval of MacMahon, Canrobert, and other soldiers. His book also interested the King of Prussia, whose attention was called to it by Queen Augusta; Princess Louis of Hesse (Princess Alice); the Crown Prince, afterwards the Emperor Frederick; Von Roon, then Prussian Minister for War; Oscar II, King of Sweden, and many other influential persons. Dunant spared no pains to secure support for his scheme. He went about from one country to another trying to enlist the active sympathies of those in power, and gained for himself the name of the new Peter the Hermit. A conference took pace at Geneva on Oct. 26, 27, 28 and 29, 1863, at which the following States were represented: Austria, Baden, Bavaria, Spain, France, Great Britain, Hanover, Hesse Darmstadt, Italy, Holland, Prussia, Russia, Saxony, Sweden and Norway, Switzerland, Wurtemburg. Besides these, Denmark, Mecklenburg-Schwerin, and Portugal sent official intimations that they would accept the conclusions of the conference."

It was this Geneva Conference which led to the organization of the Red Cross Society and its subsequent extension through all the civilized countries of the world.

NOTICE.

A Meeting for the Discussion of Hospital Efficiency, at the Boston Medical Library, at 8 P.M., January 6th, Under the Auspices of the Surgical Section of the Suffolk District Medical Society.

Up to the present time the public and the medical profession have regarded hospitals as places for the treatment of the sick, but not necessarily for their *efficient* treatment. Attention has been paid to the cleanliness of institutions, to the architectural arrangement of the buildings, to the kindliness of the staff and nurses, etc., but no attempt has ever been systematically made to determine whether the treatment so freely given has been efficient—that is, as successful as possible.

In most hospitals there has been no official or department whose duty it has been to ascertain the results of treatment at all, much less to compare the results attained by different members of the staff in any one institution, or even to make a collective comparison of the results attained by the whole staff with that of another similiar institution.

Evidently, trustees, as a rule, have felt that the best they could do was to appoint respectable men on their staffs and then to leave the degree of efficiency of treatment given the patients to the individual conscience and ability of the physician or surgeon on duty.

The terms of duty have been arranged by the calendar or by seniority.

Obviously, if there is any difference in the value of the services of one surgeon or physician and another —which the public seems to admit by its willingness to pay large fees—this difference must be capable of demonstration by some comparative test so that the distribution of the cases may be made more rationally than by the calendar or by seniority. No physician or surgeon nowadays can be expected to be proficieint in all the branches of even a single specialty.

Has the time come when hospital organization can be based on the idea of giving the patients successful and effective treatment as well as care and kindness? Is it possible to compare therapeutic results in medicine and surgery or must we admit that no matter how much we read, study, practice and take pains, when it comes to a show-down of the results of our treatment, no one could tell the difference between what we have accomplished and results of some genial charlatan or some less painstaking and energetic colleague.

Comparisons are odious but comparisons are necessary in science. Until we freely make therapeutic comparisons, we cannot claim that a given hospital is efficient, for efficiency implies that the results have been looked into. Hospital efficiency is mainly therapeutic efficiency.

The meeting on January 6th is to stimulate thought on these questions. Has it occurred to you that no person or department in a charitable hospital is responsible for the medical and surgical efficiency?

The speakers will discuss the question of who should be responsible.

The following is the provisional program:

"Hospital Efficiency from the Standpoint of an Efficiency Expert," by Frank B Gilbreth, of Providence.

"Hospital Efficiency from the Standpoint of a Hospital Surgeon," by Robert L. Dickinson, M.D., Brooklyn, N. Y.

GENERAL DISCUSSION.

It is planned to have discussion of the subject by prominent men representing the three great divisions of hospital organization: trustees, staff, and administration.

Trustees of hospitals are cordially invited to attend.

The meeting on February 3, 1915 will be for the discussion of the treatment of Fracture of the Thigh.

The program will be arranged according to the material presented in response to the following notice.

Each hospital in Massachusetts is invited to send to the Secretary abstracts of all the cases of fracture of the shaft of the femur which have been under its care from January 1, 1900, to January 1, 1914. These abstracts are to be presented on End Result Cards, which will be supplied if requested

For noting the results on the reverse of the card the following suggestions are given: 1. Date of last examination 2. How long after the injury did the patient return to work? (Answer: In less than 6 mos., 1 yr., 2 yrs., etc.) 3. Give objective signs of failure in the perfection of result (*e.g.* shortening, non-union, limp, limitation of motion, of knee or his, etc.). 4. Give subjective symptoms. (Pain in motion, undue sense of fatigue, habit of invalidism, etc.) 5. Make diagram of seat of fracture if x-ray has been taken. 6. State any complications from coincident accident or disease which in your opinion might rule out the case from a statistical estimation.

Any hospital which sends its statistics should include cases over ten year of age in which the fracture did not involve the femur above the lesser trochanter or below the condyles.

Include cases which were treated by other hospitals or practitioners and came to your hospital for correction of non-union. It is not necessary to give the names of the practitioner or surgeon in such cases.

The program of the meeting will be so arranged that those men who have done the work of looking up the cases will be able to give us their opinions on the general question of the advisability of operative treatment. Each hospital staff is urged to appoint some of its members to look up their cases even if there are only a few of them, for it is probable that very few cases are treated in all the hospitals, the Massachusetts General Hospital having only 53 cases in 1913, and of these many will probably have to be excluded. If you will kindly let the Secretary know as soon as you can whether your hospital plans to do its share, sample "End Result Cards" will be sent you.

E. A. CODMAN, M.D., *Chairman*,
BETH VINCENT, M.D., *Secretary*.
(295 Beacon St., Boston)

NOTICES.

THE NORFOLK DISTRICT MEDICAL SOCIETY.—A regular meeting of the Society will be held at Peter Bent Brigham Hospital, Huntington Avenue, Tuesday, December 29, at 8 P.M. sharp. Telephone, Brookline 5260.

Business.

Communication: "The Principles of Radical and Palliative Treatment of Varicose Veins and Ulcer of the Legs. Illustrated." Dr. John Homans.

Refreshments after the meeting.

BRADFORD KENT, M.D., *Secretary*,
798 Blue Hill Ave., Dorchester.

THE BOSTON CITY HOSPITAL.—After January 1, 1915, public operations will be performed in the Surgical Amphitheatre each week, on Thursdays, Fridays and Saturdays, at 10 o'clock.

Thursday: First Surgical Service. Dr. Blake.

Friday: Third Surgical Service, Dr. Nichols, and Fourth Surgical (G-U) Service, Dr. Thorndike.

Saturday: Second Surgical Service. Dr. Lund.

Notice of these operations will be sent to anyone expressing his desire to receive it.

RECENT DEATHS.

DR. CHARLES PERIER, who died on Dec. 13 at Paris, was born in that city in 1836. He was educated at the Lycée Condorcet, and received the degree of M.D. in 1864. From 1866 to 1875 he was associate professor of the faculty of medicine of Paris, from 1872 to 1898 he was surgeon of hospitals, and from 1892 to 1898 a member of the committee of supervision of the public assistance. In 1893 he was president of the Society of Surgeons of Paris, and in 1903 was elected president of the sixteenth congress of French surgeons. He was an officer of the Legion of Honor. He is survived by his widow.

DR. CHARLES W. TRUEHART, who died on Dec. 15 at San Antonio, Texas, was born in 1837. He was for many years a health officer of Galveston.

DR. THOMAS W. FLOOD, who died of typhoid fever on Dec. 16, at Haverhill, Mass., was born at Nashua, N. H., in 1883. He received the degree of M.D. from Baltimore University in 1902 and since that time had practised his profession in Haverhill.

DR. PATRICK W. MURPHY, of Canton, Mass., who died on Dec. 16 at Framingham, Mass., was born in 1876. He graduated from Boston University in 1898 and from the Harvard Medical School in 1902. He was medical examiner of the Metropolitan Life Insurance Company. He is survived by his widow and by one daughter.

DR. JULIUS L. FRIEDLER of New York died on December 13, in his sixtieth year. He was a native of Cracow, Austria, and was graduated from Bellevue Hospital Medical College in 1889.

BOOKS AND PAMPHLETS RECEIVED.

A Text-book for Midwives, by John S. Fairbairn. Oxford University Press. 1914.